

A GAME OF CAT AND MOUSE:
INTELLIGENCE AND DYNAMIC TARGETING IN OPERATION ALLIED
FORCE

BY

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The undersigned certify that this thesis meets master's-level standards of research, argumentation, and expression.

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DISCLAIMER

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.



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ABSTRACT

This study provides an analysis of intelligence, surveillance, and reconnaissance (ISR) operations supporting dynamic targeting during Operation Allied Force. First, the author examines the development of Air Force thought and capability during the 1990s regarding dynamic targeting and intelligence in the aftermath of the Gulf War. Next the author traces the development of the North Atlantic Treaty Organization's (NATO) coercive use of air power to address ethnic conflict following the dissolution of Yugoslavia. With this background, the author analyzes the integration of ISR into the planning and execution of NATO's air war over Serbia in 1999. The chosen strategies of the enemy challenged the Air Force's intelligence capabilities developed to fight a conventional force-on-force battle. Based on NATO's experience in Kosovo, the author assesses that intelligence should be integrated into planning and operations as early as possible to maximize effectiveness. Intelligence airmen should also embrace a multi-domain approach to providing battlespace awareness by deliberately leveraging all assets at their disposal. Furthermore, ISR employment must account for multiple variables including the reactive nature of the enemy and the limitations of the operating environment. The author relates the challenges faced by NATO airmen in Serbia to the modern security environment where operations will be increasingly conducted in contested environments against resourceful and adaptive enemies.

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Chapter 1

Introduction

Air power's ability to affect targets has always exceeded its ability to identify them...Intelligence is essential to targeting; moreover, intelligence specifically geared toward air war is required.

Colonel Phillip S. Meilinger

As we tried to get inside the heads of these ground commanders in Kosovo, it took all of the technology we had to track these guys, learn their habits, be able to predict what they were going to do next.

General John J. Jumper

On January 18, 1991 Iraqi forces launched seven SS-1 Scud missiles toward Israel.¹ While the Scud was an imprecise weapon with little tactical military value on the battlefield, it had tremendous potential as a terror weapon, particularly if mated with chemical weapons and employed against civilian population hubs. In the context of the Desert Storm air campaign, one observer declared the Scud to be Iraq's most effective weapon due to its political impact and its ability to divert significant resources away from other priorities.² Neutralizing the Scud threat quickly became a strategic imperative for the multinational coalition amassed by the United States to counter the aggression of Saddam Hussein.³ Actually finding and destroying the missile launchers, however, presented a significant problem for coalition planners. While coalition airmen easily identified and destroyed fixed

¹ William Thomas Allison, *The Gulf War, 1990-1991* (New York: Palgrave Macmillan, 2012), 116.

² John Andreas Olsen, *Strategic Air Power in Desert Storm* (London: Routledge, 2003), 246.

³ Tom Clancy and Gen Chuck Horner, *Every Man a Tiger: The Gulf War Air Campaign* (New York: Berkley Books, 1999), 320-321.

launch sites and fuel production facilities early in the war, mobile Scud units flushed from their garrison locations left friendly forces little option other than assuming a defensive position with their own Patriot missile systems.⁴ The political situation, however, demanded a more offensive approach focused on eliminating the errant launchers.

Both air and special operation forces aggressively hunted the mobile launchers with little to show for their effort. Airmen relentlessly searched the vast expanses of Iraqi desert, flying A-10 attack aircraft by day and F-15E and F-16 fighters equipped with advanced targeting pods by night.⁵ By the end of the conflict, the air component had dedicated over 1,400 sorties to hunting mobile Scud launchers.⁶ These missions accounted for nearly 20 percent of all F-15E fighter sorties during the war.⁷ In an otherwise laudatory account of the war, author Tom Clancy, along with General Chuck Horner, identified the failure to neutralize Saddam's Scuds as Horner's greatest failure of the war as the coalition's senior air commander. In their words, it was "the one area where airpower could not secure and maintain military initiative."⁸ The Air Force-sponsored postwar assessment substantiates this assertion assessing that the destruction of Scud launchers was likely much lower than claims made during the war owing in large part to a lack of aircraft sensor fidelity and Iraqi tactics.⁹

Although the United States military as a whole and the Air Force in particular emerged triumphant from the deserts of Iraq in 1991, the

⁴ Clancy and Horner, *Every Man a Tiger*, 379.

⁵ Clancy and Horner, *Every Man a Tiger*, 278.

⁶ Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey*, vol 2 (Washington D.C.: United States Air Force, 1993), 269-286.

⁷ Benjamin S. Lambeth, *Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), 146.

⁸ Clancy and Horner, *Every Man a Tiger*, 386.

⁹ Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, D.C.: United States Air Force, 1993), 91.

failure of the “Great Scud Hunt” would serve as a catalyst to improve dynamic targeting capabilities requiring an emphasis on the integration of intelligence, surveillance, and reconnaissance (ISR) in air operations. The decade of the 1990s would witness increased efforts to network ISR assets with strike platforms to decrease the time spent locating and engaging targets. These efforts were put to the test when NATO launched its air war against Serbia in the spring of 1999.

Theater ISR in a Contested Environment

This paper examines how the Air Force integrated ISR into air operations over Serbia with an emphasis on intelligence support to dynamic targeting. Since the terrorist attacks of September 11, 2001, the practical experience of Air Force ISR has been largely limited to counterinsurgency operations in Iraq and Afghanistan. While ISR airmen have made invaluable contributions to the fight against violent extremism, these conflicts have not prepared the force for developing and executing an ISR strategy to enable air operations in a contested environment. The Air Force ISR enterprise is threatened with a loss of corporate knowledge for conducting ISR operations in support of a theater air campaign. Today, the Air Force faces potential challenges where it may be required to conduct dynamic targeting in non-permissive airspace. Operation Allied Force provides a prescient historical case study for conducting ISR in support of an air-centric mission in a contested environment.

Allied Force provides valuable lessons for future ISR airmen facing asymmetric enemies employing area denial strategies within politically constrained environments. As demonstrated in the skies over Serbia, ISR operations must fully leverage multi-domain collection capabilities. Furthermore, intelligence development must be integrated with air planning and operations from the earliest stages. Finally, intelligence must be leveraged not only to provide targeting information for air forces

but also to feed the assessment process by providing iterative updates to the air campaign strategy. This paper captures how airmen fighting to safeguard the people of Kosovo against Serbian aggression applied these principles at the close of the last century.

From Desert Storm to Allied Force:

The Development of ISR in support of Dynamic Targeting

The following chapters tell the story of how American airmen developed and conducted ISR to enable dynamic targeting during Operation Allied Force. Chapter 2 addresses the historical context of the Air Force during the period between the Gulf War and Allied Force. The Air Force emerged with a sense of triumphalism from Operation Desert Storm. It actively pursued doctrine and capabilities to perfect the concept of precision engagement, but these capabilities remained largely untested prior to Operation Allied Force.

Chapter 3 presents the strategic context surrounding the former Yugoslavia and NATO's interaction with crisis management in the region. Through an evolutionary process, NATO adopted a posture of coercive diplomacy enabled by air operations to deal with increasing problem of ethnic conflict. Intelligence airmen were faced with a new type of conflict that their equipment and processes were not optimized to address.

Chapter 4 builds on the strategic context of the events in Yugoslavia through the lens of the air planners who began to prepare in earnest for a war against Serbia in the summer of 1998. As the staff of US Air Forces in Europe began to prepare for conflict, intelligence professionals and air planners synchronized their efforts from the earliest stages. Intelligence airmen provided expertise to develop a targeting plan as well as began to think about how they would employ ISR collection assets in the event of conflict. This forethought would serve them well as they entered the war a few months later

Chapter 5 addresses the actual execution of the air war with a focus on ISR support to dynamic targeting. As the air war developed, dynamic targeting against both Serbian air defenses and ground forces quickly emerged as significant operational issues. Airmen developed processes to deal with both target sets with varying degrees of success. Ultimately, finding, engaging, and assessing Serbian targets reinforced the immense difficulties surrounding dynamic targeting even with modern sensors and communication technology.

Effective intelligence support to dynamic targeting requires detailed integration and planning with operations, as well as a thoughtful application of all assets available. Furthermore, ISR employment also requires a deep understanding of the operating environment and the limitations these factors place on both ISR and air operations more generally. An appreciation of these factors, highlighted through the lens of Operation Allied Force, can help prepare a new generation of intelligence airmen for future contests against resourceful enemies.

Chapter 2

The Air Force Zeitgeist, 1990-1999

In the wars to come the decisive field of action will be the aerial field.

Giulio Douhet
Command of the Air

In the 21st Century, it will be possible to find, fix or track and target anything that moves on the surface of the earth. This emerging reality will change the conduct of warfare and the role of air and space power.

From *Global Engagement:
A Vision for the 21st Century Air Force*

The military theorist Colin Gray described the decade of the 1990s as a strategic moment in the history of air power. During this period political restrictions on the use of force began to ease with the end of the Cold War, and the emerging geopolitical environment aligned with significant technological advances in aircraft, weapons, and information technology.¹ In a vivid display of potency during the Gulf War, these new technologies, coupled with unique operational approaches, appeared to bring the premonitions of classical air power theorists such as Giulio Douhet and Billy Mitchell into reality. Edward Luttwak captured this feeling by describing the air war over Iraq as something “qualitatively different” from any previous episode in the history of warfare.²

An understanding of the role of air power in Allied Force must be rooted in an appreciation of the organizational context of the Air Force in

¹ Colin S. Gray, *Airpower for Strategic Effect* (Maxwell AFB, AL: Air University Press, 2012), 189-191.

² Dr. Edward N. Luttwak, “Air Power in US Military Strategy,” in *The Future of Air Power in the Aftermath of the Gulf War*, ed. Richard H. Shultz et al. (Maxwell AFB, AL: Air University Press, 1992), 20.

the decade following the Gulf War. The Air Force emerged from the Gulf War with a sense of air power as the dominant form of warfare on the modern battlefield. During the decade of the 1990s, the Air Force sought to develop doctrine and capabilities to grow into this vision. The Air Force's organizational context included new ideas for integrating intelligence, surveillance, and reconnaissance (ISR) and dynamic targeting, which would later influence operations during Allied Force. Building on the operational methods of John Warden and leveraging technological developments in air power capabilities, the Air Force created a doctrine focused on the concept of precision engagement. The ability for its intelligence networks to support this new doctrine, however, remained largely untested on the eve of the air war in Serbia.

From *The Air Campaign* to Desert Storm:

The Influence of John Warden and the Gulf War on the US Air Force

A confluence of military, technological, and political circumstances brought the air weapon to the forefront of US national security during the 1990s. The ideas of Colonel John Warden provided an intellectual foundation for American airmen to contemplate their central role in the new security environment. The air campaign executed during Desert Storm vindicated Warden's ideas and the airman's traditional belief in the efficacy of independent air power. Desert Storm also highlighted areas of needed improvements, particularly the effective integration of intelligence with air operations.

As much as any other man, Colonel John Warden embodied the intellectual development of American air power thought in the 1990s. While he spent most of his career as a fighter pilot, Warden's only combat experience was flying low and slow in a propeller-driven OV-10 as a forward air controller over South Vietnam. The lessons he took from his Vietnam experience, rooted in a belief air power had been strategically misapplied, became the genesis for his future theories on air

warfare.³ His ideas on air power crystallized nearly a decade and a half later when the National Defense University published his student thesis, *The Air Campaign*. In his thesis, Warden advocated for the primacy of gaining air superiority and the potential for air power to take a leading role in military operations by largely bypassing fielded military forces.⁴ At the time, the US military did not widely accept such a central and potentially independent role for air power.⁵ In many respects *The Air Campaign* directly countered the US Army's core doctrine of the period, *Field Manual 100-5: AirLand Battle*, which regarded air power employment primarily as a supporting role in the attrition of fielded ground forces in a likely confrontation with the Soviets in Europe.⁶ In contrast to *AirLand Battle*, Warden provided a uniquely air-minded perspective for planning and prosecuting modern operational-level warfare.

As the Gulf War approached, Warden seized the opportunity to translate his ideas from academic musings to real-world operations. Undergirded by many of the ideas in *The Air Campaign*, Warden and his staff at the Air Force's Checkmate office in the Pentagon formulated the initial concept for the Gulf War air plan at the request of General Norman Schwarzkopf. Warden dubbed the plan "Instant Thunder" to clearly differentiate it from the graduated escalation of force associated with the Rolling Thunder air campaign of the Vietnam War.⁷ Instant Thunder and

³ John Andreas Olsen, *John Warden and the Renaissance of American Airpower* (Washington D.C.: Potomac Books, Inc., 2007), 19-22.

⁴ Col John A. Warden III, *The Air Campaign* (San Jose, Ca: toExcel Press, 2000), 10-15.

⁵ Olsen, *John Warden*, 80.

⁶ Olsen, *John Warden*, 64-65.

⁷ While the air campaign eventually executed during the Gulf War was heavily modified, the intellectual roots of Instant Thunder are undeniable. Furthermore, one of Warden's protégés from Checkmate, Lt Col Dave Deptula, remained in Riyadh for the full duration of the war and played a primary role in adapting Instant Thunder into the eventual

the subsequent Gulf War air campaign emphasized large-scale air attacks simultaneously striking multiple elements of the Iraqi command infrastructure. Through these attacks, Warden sought to rapidly paralyze the Iraqi military chain-of-command rather than become tied to a protracted war of attrition on the ground. Air power's resounding success during the Gulf War reinforced the precepts of *The Air Campaign*. Air superiority played a critical role in the campaign providing freedom of action to coalition forces. While the true effects of the strategic bombing campaign originally envisioned in *Instant Thunder* remain disputed, the compounding effects of the strikes on Saddam Hussein and his command structure significantly restricted the Iraqis' ability to react on the battlefield and robbed them of their preferred strategy to draw the coalition into a prolonged ground war.⁸ Warden's ideas provided a cornerstone for air power thought in the decade following the Gulf War.

In recognition of the perceived qualitative difference in the nature of air power in Desert Storm, Secretary of the Air Force Don Rice commissioned the Gulf War Air Power Survey (GWAPS) to capture the lessons of the war.⁹ The report declared, "From 16 January through 28 February 1991, the United States and its allies conducted one of the most operationally successful wars in history, a conflict in which air operations played a preeminent role."¹⁰ While acknowledging the success of air power, the GWAPS stopped short of claiming that the Gulf War represented a revolution in warfare. In fact, the concluding chapter

CENTCOM air campaign. For a full description of the evolution of *Instant Thunder* into the final air campaign plan see Diane T. Putney, *Airpower Advantage: Planning the Gulf War Air Campaign, 1989-1991* (Washington D.C.: Air Force History and Museums Program, 2004).

⁸ John Andreas Olsen, *Strategic Air Power in Desert Storm* (London: Routledge, 2003), 256-265.

⁹ Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey (GWAPS) Summary Report* (Washington, D.C.: United States Air Force, 1993), ix-xi.

¹⁰ Keaney and Cohen, *GWAPS Summary Report*, ix.

of the GWAPS executive summary refuted the two contemporary claims that the air war either was a fulfillment of interwar air theory or, alternatively, the war represented a military-technical revolution.¹¹ The authors of the report presented the Gulf War as an evolution of previously demonstrated technology and operational approaches. The authors granted “the ingredients for a transformation may well have been visible,” but it was too early to tell if these ingredients would lead to a true revolution in warfare.¹² One area where the war effort fell short, however, was the integration of intelligence and planning staffs.

While the air war against Iraq was heralded as an overwhelming success, the level of intelligence integration into the operation was mixed. The initial deployment of the intelligence staff for Central Air Force (CENTAF) headquarters contained only eight personnel. This initial staff deployed from the 9th Tactical Intelligence Squadron, which was associated with General Horner’s 9th Air Force headquarters at Shaw AFB, South Carolina. Additional intelligence staff members eventually deployed to CENTAF, but many of these were reservists and augmentees lacking substantial targeting training required to support a complex air campaign. Furthermore, the operations planning staff for the eventual bombing campaign known as the “Black Hole” remained largely segregated from the rest of the CENTAF staff at Riyadh leading to a rift with the intelligence directorate. This separation began when the CENTAF staff initially judged the Black Hole planners as outsiders bearing Warden’s Instant Thunder plan. Even when the “Black Hole” eventually grew into the main planning effort for the war, the physical and organizational separation remained.¹³

The lead air planners and the intelligence staff failed to reconcile their differences over the course of the war. Brigadier General Buster

¹¹ Keaney and Cohen, *GWAPS Summary Report*, 235.

¹² Keaney and Cohen, *GWAPS Summary Report*, 251.

¹³ Keaney and Cohen, *GWAPS Summary Report*, 129.

Glosson, the lead “Black Hole” planner, grew frustrated with the CENTAF intelligence staff’s inability to provide relevant intelligence support, particularly in the realm of updated target imagery.¹⁴ At the height of the war, approximately 300 personnel of the CENTAF intelligence staff were officially responsible for providing intelligence for the air war, but Glosson mainly bypassed them. Horner eventually designated Glosson as not only the primary planner for the air war but also commander of the 14th Air Division Provisional putting him in direct command of the theater’s fighter wings. Determining the established intelligence process to be too slow and ineffective, Glosson instead leveraged personal contacts reaching back directly to Checkmate, Warden’s Pentagon-based troubleshooting unit, and the Defense Intelligence Agency in Washington, D.C for targeting information.¹⁵ While the air war in Desert Storm was widely judged a resounding success, the intelligence structure and mechanisms proved lacking. In future conflicts where dynamic targeting might become more central to the air campaign, these operational and intelligence functions would need to be more closely aligned.

From Strategic Vision to Doctrine:

The Evolution of Air Force Thought through the 1990s

Senior leaders within the Air Force sought to capitalize on the emerging prestige of air power in the aftermath of Desert Storm. While the Gulf War served as an awakening to the potential of modern air power, the Air Force produced a series of strategy documents emphasizing its emerging role in national security. Over the course of the decade, Airmen translated these strategic vision statements into doctrine to guide future operations. These doctrine documents would provide a framework for the operational command and intelligence functions executed against Serbia at the end of the decade.

¹⁴ Keaney and Cohen, *GWAPS Summary Report*, 130-132.

¹⁵ Keaney and Cohen, *GWAPS Summary Report*, 148.

Published shortly before the Gulf War, Secretary Rice's white paper, *Global Reach, Global Power*, served as the departure point for how the post-Cold War Air Force should function. Considering the paper was originally published in June 1990, it was ominously prescient in addressing the potential necessity to prevent an aggressor state in the Persian Gulf from dominating oil supplies.¹⁶ Rice emphasized the need to increase quality within the service's force structure to offset the loss of quantity triggered by the post-Cold War draw down of forces. He offered stealth technology as a prime example of one such quality enhancement.¹⁷ With the Cold War drawing to a close, the paper predicted the rising dominance of short duration, high impact operations. Rice viewed the Air Force as uniquely suited for such operations due to its flexibility in concentrating combat power quickly across long distances.¹⁸ In a rapidly changing international environment, *Global Reach, Global Power* provided a vision for the Air Force's emerging position in US national security.

In 1995 Air Force Chief of Staff General Ronald Fogleman and Secretary of the Air Force Sheila Widnall further expanded the vision of the Air Force's role at the end of twentieth century in a white paper titled *Global Presence*. Directly tackling the issue of post-Cold War downsizing, the concept of global presence advocated an expeditionary mindset as well as the notion of rapid mobility across the globe as opposed to the previous doctrine of "forward defense" requiring large numbers of pre-staged forces, particularly in Europe.¹⁹ This new strategy incorporated an appreciation for the new national security environment as well as recognition of technological developments.

¹⁶ Donald B. Rice, *The Air Force and U.S. National Security: Global Reach, Global Power* (Washington, D.C.: United States Air Force, 1990), 2.

¹⁷ Rice, *Global Reach, Global Power*, 3.

¹⁸ Rice, *Global Reach, Global Power*, 6-7.

¹⁹ Gen Ronald R. Fogleman and Sheila E. Widnall, *Global Presence* (Washington, D.C.: United States Air Force, 1995), 4.

As presented in *Global Presence*, a strategy of presence relied on a globally integrated intelligence network. Although the document did not specifically use the terms intelligence, surveillance, or reconnaissance, it did establish “situational awareness” as one of three significant areas of innovation enabling the new global presence strategy.²⁰ The authors highlighted the technological advances in both airborne and space-based surveillance capabilities available to enable rapid decision-making in both peace and war.²¹ These sensors would form an “alarm network” to provide information in the absence of forward-stationed military units.²² Unlike during the Cold War with its massive installations of permanent forces overseas, the new strategy relied on the power of information and the ability for US forces to rapidly respond to trouble spots as necessary.²³

The role of the modern Air Force initially envisioned by the *Global Reach*, *Global Power* and *Global Presence* white papers eventually became enshrined in official Air Force doctrine. A series of new doctrine documents captured the guiding principles airmen would later take with them into the Kosovo war. Published in 1997, Air Force Doctrine Document (AFDD) 1 *Air Force Basic Doctrine* reflected on America’s air power successes in Iraq while looking forward to the potential of air, space, and information power in future conflicts. AFDD 1 identified speed, range, and precision as unique elements of the air weapon. These attributes eliminated the need for traditional sequential military operations of first attacking front-line fielded forces before engaging strategic targets far behind enemy lines.²⁴ While this preference for bypassing land-centric battlefields was not particularly novel, the

²⁰ Fogleman and Widnall, *Global Presence*, 12.

²¹ Fogleman and Widnall, *Global Presence*, 13.

²² Fogleman and Widnall, *Global Presence*, 6-7.

²³ Fogleman and Widnall, *Global Presence*, 7, 10.

²⁴ Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, September 1997, 40.

authors of AFDD 1 offered a new dimension by emphasizing the importance of precision engagement and information superiority, which the doctrine now identified as two of the Air Force's six core competencies.²⁵ Precision engagement referred to air power's ability to "apply discriminate force precisely where required."²⁶ Such discriminate and precise use of force was enabled through information superiority, which involved the collection and application of intelligence to enable decision-making while denying the same capability to the enemy.²⁷ According to this doctrine, air power now had "the potential to be the dominant and, at times, the decisive element of combat in modern warfare."²⁸ The aspirational message of AFDD 1 captured the essence of air power ascendancy during the 1990s.

AFDD 2, *Organization and Employment of Aerospace Power*, built upon the principles of AFDD 1 by providing additional guidance for the planning and execution of air operations.²⁹ The authors of this second foundational doctrine document believed an airmen's perspective should be focused on battlefield effects, not geography, when targeting enemy systems.³⁰ In a reflection back to both *The Air Campaign* and the experience of the Gulf War, the authors emphasized air power's unique ability to strike at multiple targets across an enemy nation to cripple its ability to wield military power. According to the doctrine, a modern air campaign required the Air Force to strike discrete targets enabled by detailed intelligence.³¹ Harkening back to the *Global Presence* strategy, the new doctrine also addressed air power's ability to rapidly respond to

²⁵ AFDD 1, 30-31.

²⁶ AFDD 1, 30.

²⁷ AFDD 1, 31-32.

²⁸ AFDD 1, 41.

²⁹ AFDD 2, *Organization and Employment of Aerospace Power*, 28 September 1998, 1.

³⁰ AFDD 2, 1-2.

³¹ AFDD 2, 6-7.

crises around the world potentially negating the need for a forward-deployed military presence to achieve policy objectives.³²

AFDD 2 also illuminated expectations for intelligence, surveillance, and reconnaissance (ISR) in a modern air campaign. The document identified ISR as a key component in achieving precision engagement. The Joint Force Air Component Commander (JFACC), as the senior air commander in the theater, was vested with the primary responsibility for planning, tasking, and executing airborne theater ISR operations executed through the Joint Air Operations Center (JAOC).³³ Then conceived as components of information warfare, the functions of reconnaissance and surveillance “provide[d] the information required to formulate strategy, develop plans, and conduct operations” by locating, identifying, and tracking potential targets.³⁴ Less than a year after its publication, airmen would put the precepts of AFDD 2 to the test in the skies over Serbia.

Emergence of Air Force Dynamic Targeting

While the Air Force heralded the Gulf War as a major success, the operational failure of the “Great Scud Hunt” discussed in Chapter 1 stood out as a notable exception. Furthermore, the Air Force could not count on future enemies to be as cooperative as the Iraqis. As General Chuck Horner, the top Gulf War air commander pointed out, “Saddam... was a lucky adversary for us. He could have made life much harder for us than he did.”³⁵ To live into the promise of the ascendant air power narrative, the Air Force had to demonstrate not only its ability to precisely engage targets but also to find and fix these targets on the move. By the end of 1990s, the Air Force recognized the importance of

³² AFDD 2, 8.

³³ AFDD 2, 64.

³⁴ AFDD 2, 22.

³⁵ Tom Clancy and Gen Chuck Horner, *Every Man a Tiger: The Gulf War Air Campaign* (New York: Berkley Books, 1999), 282.

dynamic targeting but was still developing reliable capabilities to carry out these missions.

The modern military mission of dynamic targeting encapsulates the capability the Air Force was struggling to develop during this period. Current US joint doctrine defines dynamic targeting as “targeting that prosecutes targets identified too late, or not selected for action in time to be included in deliberate targeting.”³⁶ In the nomenclature of the 1990s, the idea of dynamic targeting was best captured by the concept of time-critical targets defined as “lucrative, fleeting, air, land, or sea target of such high priority to friendly forces that the JFC/component commander designates it as requiring immediate response.”³⁷ Responding to time-critical targets required precise and rapidly communicated intelligence. The required partnership between intelligence and operations grew ever closer as the need for dynamic targeting became more apparent.

Contemporary joint targeting doctrine identified immediate time-critical targets as mobile in nature and requiring “a delicate balance of flexibility and control that must be maintained over large operational areas and numerous complex weapon systems.”³⁸ Under ideal conditions a common operating picture would be available to enable the seamless command and control of prosecuting such a target, but in reality such a shared picture was unlikely to exist across all players involved in the targeting process.³⁹ Due to this anticipated seam, joint doctrine provided a detailed series of coordination and deconfliction measures for prosecuting time-critical targets.

AFDD 2-1.3 *Counterland* published shortly after Allied Force emphasized the complementary role ISR played in relation to counterland

³⁶ Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 15 October 2016, 74.

³⁷ Air Force Joint Pamphlet (AFJPAM) 10-225, *The Joint Targeting Process and Procedures for Targeting Time-Critical Targets*, July 1997, viii

³⁸ AFJPAM 10-225, II-3.

³⁹ AFJPAM 10-225, II-3.

operations. As opposed to the mission area of strategic attack, which focused mainly on fixed targets, counterland targets were often mobile and therefore fleeting in nature.⁴⁰ In the doctrine of the period, air interdiction was a specific sub-category of counterland operations occurring beyond the immediate frontlines of ground forces where air power sought to “destroy, disrupt, divert, or delay the enemy’s surface military potential.”⁴¹ The Air Force’s counterland doctrine allowed for the possibility of dynamic targeting through the use of flexible air interdiction targeting known as armed reconnaissance. The doctrine conceded a preference for pre-planned interdiction when possible due to the decreased efficiency of dynamically tasking aircraft in flight.⁴² In the forested hills of Kosovo, however, the enemy presented few opportunities for striking pre-planned stationary targets.

As the idea of dynamic targeting entered US doctrine, the Air Force began to exercise these concepts through technology demonstrations. In November 1996, under the auspices of the Air Force Tactical Exploitation of National Capabilities (TENCAP) program, Air Combat Command executed a demonstration of capabilities to prosecute mobile dynamic targets known as Project STRIKE II. The demonstration linked a modified F-15E fighter to an air operations center, E-3 Airborne Warning and Control System (AWACS) aircraft, as well as multiple airborne and space-based ISR systems. Mobile enemy targets included Scud launchers, surface-to-air missile systems, and truck convoys. The project demonstrated the ability to link ISR, command and control (C2), and strike platforms through satellite communications and tactical data links. These networks significantly enhanced the ability to pass real-time intelligence from intelligence collectors to strike aircraft to enable

⁴⁰ AFDD 2-1.3, *Counterland*, 27 August 1999, 15.

⁴¹ AFDD 2-1.3, 23.

⁴² AFDD 2-1.3, 27-28.

dynamic targeting.⁴³ However, this level of detailed integration between ISR and strike assets remained a demonstration of potential and not necessarily an operationally tested capability.

During this time period the Aerospace Command and Control Agency (AC2A) was identified as a possible lead agency for developing and linking advanced C2 and ISR capabilities. During the Air Force's 1997 Corona Conference, where the service's four-star generals meet to discuss the strategic direction of the Air Force, the conference recommended that the AC2A should become a focal point for networked integration to break down barriers between various C2 and ISR communities. The Air Force re-designated the AC2A as the Air Force Command and Control, Intelligence, Surveillance, and Reconnaissance Agency (AFC2ISRC) with the mission to integrate previously disparate C2 and ISR capabilities to better serve air commanders. With this new authority, the center launched its first Expeditionary Force Experiment (EFX) in 1998 seeking to develop a workable solution for conducting dynamic targeting against time-critical targets.⁴⁴ The TENCAP and EFX programs demonstrated the Air Force was not only paying lip service to the importance of dynamic targeting but was actually taking steps to solve real-world dilemmas of rapidly collecting, assessing, and distributing targeting intelligence. Any solution to the dynamic targeting problem had to involve connecting strike, C2, and ISR aircraft in a meaningful way.

The Air Force's emerging interest in dynamic targeting was reflected in a speech made by Air Force Chief of Staff General Ronald R.

⁴³ Headquarters, Air Combat Command (ACC), *ACC Reconnaissance Study, 1 January – 31 December 1996, Volume I* (U) (Langley AFB, VA: Office of ACC History, December 1997), 6-7. (SECRET) Information extracted is unclassified.

⁴⁴ Lt Col Michael W. Kometer, *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower* (Maxwell AFB, AL: Air University Press, 2007), 95-96.

Fogleman's to the Air Force Association in October 1996. General Fogleman declared "in the first quarter of the 21st century it will become possible to find, fix or track, and target anything that moves on the surface of the Earth."⁴⁵ During the 1990s both Air Force and joint doctrine began to address the need for dynamic targeting thought and procedures. While the Air Force took steps to develop a combat network to bring General Fogleman's vision into reality, these capabilities remained at the experimental stage as the nation approached its showdown with Serbia in the spring of 1999.

Air Force ISR in the 1990s

The execution of effective dynamic targeting operations required the rapid dissemination of precise intelligence. To this end, the Air Force supplemented its basic doctrine with specific ISR doctrine to address the intelligence requirements of modern air warfare. This doctrine alone, however, provided only one piece of the ISR puzzle. The actual sources feeding into this network, a mix of old and new ISR systems, provided a critical component toward realizing the goal of precision intelligence for dynamic targeting.

AFDD 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations*, captured the official Air Force view on ISR employment at the end of 1990s. This document collectively defined ISR as "integrated capabilities to collect, process, exploit, and disseminate accurate and timely information that provides the battlespace awareness necessary to successfully plan and conduct operations."⁴⁶ The constituent elements of surveillance and reconnaissance referred to operations undertaken to gain information about the operational environment in either a sustained

⁴⁵ John A. Tirpak, "Find, Fix, Track, Target, Engage, Assess," *Air Force Magazine*, July 2000, 24.

⁴⁶ AFDD 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations*, 21 April 1999, 1.

or transitory manner respectively. Intelligence was the resulting product of the processing and analysis of various sources of information regarding foreign entities, particularly military capabilities.⁴⁷

From AFDD 2-5.2, ISR emerged as a central function enabling air operations. First, the Air Force officially recognized ISR as a critical enabler to other core mission sets, particularly any type of strikes requiring targeting intelligence, such as strategic attack or precision engagement.⁴⁸ A second major takeaway from this doctrine was the central role of the JFACC who would normally be designated as the supported commander for airborne theater ISR. In this capacity, the JFACC would provide integrated ISR functions to the Joint Force Commander.⁴⁹ This concept is analogous to the theater air commander receiving operational control over kinetic air assets in order to allocate resources to meet the campaign objectives while maintaining operational flexibility. This doctrine clearly laid out the role of ISR as a core function of the Air Force and its criticality to successful air operations.

To execute the Air Force's vision of ISR in the 1990s, a variety of platforms existed within the service's inventory. These systems represented a mix of long-serving Cold War assets and newly developed capabilities on the cutting edge of technology. These systems included the U-2 Dragon Lady, the RC-135 RIVET JOINT, the E-8 JSTARS, and the MQ-1 Predator. An air commander could also request assistance from nationally controlled satellite surveillance to augment his organic airborne collectors. Each system provided unique capabilities and limitations for an air commander in the 1990s.

The U-2 Dragon Lady was one of the Air Force's venerable Cold War aircraft with a long and distinguished operational history. The U-2 is a high-altitude single seat aircraft hosting a configurable sensor suite

⁴⁷ AFDD 2-5.2, 1-2.

⁴⁸ AFDD 2-5.2, 3.

⁴⁹ AFDD 2-5.2, 50.

including both signals intelligence and imagery intelligence capabilities. The aircraft gained public notoriety during both the Francis Gary Powers shoot down over the Soviet Union in 1960 and the discovery of Soviet nuclear missiles on Cuba during the Cuban Missile Crisis of 1962. While the U-2 became famous during these earlier events, the U-2 fleet of the 1990s was actually made up of a new generation of aircraft produced primarily between 1979 and 1989 when Lockheed Martin's U-2 production line was reopened after a ten-year hiatus. In 1999 all operational Air Force U-2s received the designation U-2S corresponding to the common avionic and mission systems upgrades to the aircraft.⁵⁰

In the late 1990s, ACC was becoming concerned about the high deployment rates of the U-2 fleet and personnel. In Air Force parlance, the U-2 was a "low-density, high-demand asset," indicating the demand signal from geographic combatant commanders for its capabilities was out-stripping the Air Force's supply of available sorties. For example, in 1996 the temporary duty rates for the U-2 exceeded desired ACC maximums by more than 16% and the fleet experienced two Class-A mishaps. ACC enacted various responses to address these issues within the U-2 organization at Beale Air Force Base, California.⁵¹ Additionally, the Air Force recognized the need for an increased capacity in high altitude ISR leading to the development of the RQ-4 Global Hawk system.⁵² While the Global Hawk would eventually join the Air Force ISR fleet, it would not reach an initial operating capability in time for Allied Force.

In addition to the aircraft, a critical piece of U-2 employment involved the near real time processing, exploitation, and dissemination of

⁵⁰ Eric Hehs, "U-2 Dragon Lady Today," Code One Magazine Volume 29, no. 5 (2014): http://www.codeonemagazine.com/u2_article.html?item_id=146.

⁵¹ Headquarters, ACC, *ACC Reconnaissance Study*, 70.

⁵² Headquarters, ACC, *ACC Reconnaissance Study*, 25-26.

intelligence from its sensors. Although Air Force ground-based processing of U-2 derived intelligence had been ongoing since the 1960s, the modern conception of near real time exploitation began with the Contingency Airborne Reconnaissance System (CARS) activated at Langley Air Force Base, Virginia in 1992. In a 1996 reconnaissance study conducted by Air Combat Command, Air Force officials identified the need to create a non-proprietary integrated system for producing intelligence from multiple platforms.⁵³ This system would eventually grow into the modern Air Force Distributed Common Ground System (AF DCGS).⁵⁴ The distributed ground sites of the DCGS would prove a vital link in providing actionable intelligence during Allied Force.

The RC-135 signals intelligence aircraft was another Cold War platform to see extensive service in the Balkans during the 1990s. Although multiple RC-135 variants were in service with the Air Force, the primary aircraft of relevance in the conflict with Serbia was the RC-135V/W RIVET JOINT. The C-135 was a four-engine cargo aircraft adapted to military use from Boeing's venerable 707 civilian jet airliner. The RIVET JOINT was a highly modified C-135 platform outfitted to perform electronic reconnaissance of the enemy. Unlike the U-2, the RC-135 relies primarily on onboard processing by a crew of mission specialists.⁵⁵ The robust communications suite then allows this intelligence to be transmitted for action.

Although originally designated as a strategic reconnaissance asset, and operated by the Strategic Air Command, the RC-135 had early forays into tactical integration in air combat. The RC-135 provided intelligence for the Teaball air control system during the air war over Vietnam, which sought to break down the barriers between compartmentalized

⁵³ Headquarters, ACC, *ACC Reconnaissance Study*, 51.

⁵⁴ United States Air Force, "Air Force Distributed Common Ground System," 13 October 2015, <http://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=854&Article=104525>.

⁵⁵ Headquarters, ACC, *ACC Reconnaissance Study*, 77.

intelligence and tactical combat aircraft. Although the legacy of Teaball was mixed, it did provide a template for integrating sensitive intelligence into the tactical execution of air war.⁵⁶ During the Gulf War, the RC-135 was again called on to serve in a tactical capacity. Like the U-2, the RC-135 is considered a low-density, high-demand asset with only 14 RIVET JOINT aircraft in the inventory in 1996. This recognition led ACC to undergo a fleet expansion converting two additional C-135 aircraft to RC-135V/W configuration as the 1990s came to a close.⁵⁷ Like the U-2, the RC-135 was called on to provide intelligence for the air war over Serbia.

In addition to these old Cold War workhorses, the 1990s saw the introduction of new airborne ISR capabilities as well. The E-8 Joint Surveillance Target Attack Radar System (JSTARS) is a modified Boeing 707-300 aircraft equipped with a side-looking phased array radar to provide battlefield surveillance for air and ground commanders.⁵⁸ The JSTARS first foray into combat was as an experimental capability during the Gulf War. During the conflict, the system gained notoriety during the Battle of Al Khafji. On the night of January 30, 1991, the Iraqi army attempted to mass for an attack on the lightly defended Saudi city of Al Khafji. The JSTARS was able to survey the entire Kuwaiti Theater of Operations in a single orbit and during the battle proved invaluable in directing coalition air assets engaging enemy ground targets. Ultimately, the Iraqi advance was decisively halted, resulting in the reported destruction of nearly 600 tanks, armored personnel carriers, and mobile

⁵⁶ Marshall L. Michel III, *Clashes: Air Combat over North Vietnam 1965-1972* (Annapolis, MD: Naval Institute Press, 1997), 250-253, 282-285.

⁵⁷ Headquarters ACC, *ACC Reconnaissance Study*, 81.

⁵⁸ United States Air Force, "E-8C Joint Stars," 23 September 2015, <http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104507/e-8c-joint-stars.aspx>.

artillery pieces.⁵⁹ While the JSTARS became a model of success in the deserts of Iraq, its ability to perform in mountainous terrain against an enemy force dispersed among the population would be tested in the Balkan campaigns.

Another new system, the RQ-1 Predator, saw its operational debut in the Balkans. The Predator was developed to provide joint force commanders with a capability for persistent, real-time surveillance while also being expendable over defended enemy areas.⁶⁰ The close of Desert Storm brought a realization among Air Force leaders in the need for additional tactical reconnaissance assets. With the retirement of the RF-4C fleet and the cancellation of follow-on tactical reconnaissance programs, the Air Force teamed with DARPA to develop a viable medium-altitude unmanned aerial vehicle to meet these expanded requirements.⁶¹ On June 19, 1996, the Air Force designated Air Combat Command as the lead agent for integrating the Predator into the Air Force, and the system completed its Advanced Concept Technology Demonstration on June 30th.⁶² Nearly a year earlier in July 1995, the Predator had already embarked on its first combat deployment to Albania where it flew 80 missions over Bosnia. During this 120-day deployment, the MQ-1 provided ISR for NATO and UN peacekeeping forces. In a second deployment in 1996, the Predator flew an additional 176 missions including such milestones as uncovering evidence of mass graves near Sarajevo, monitoring Bosnian elections, and providing over-watch for NATO forces preventing confrontations with Bosnian factions.⁶³ Having proved its worth in Bosnia, the Predator would again be called to duty for the fight in Serbia.

⁵⁹ Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), 121-123.

⁶⁰ Headquarters ACC, *ACC Reconnaissance Study*, 32.

⁶¹ Headquarters ACC, *ACC Reconnaissance Study*, 25.

⁶² Headquarters ACC, *ACC Reconnaissance Study*, 34.

⁶³ Headquarters ACC, *ACC Reconnaissance Study*, 42.

In addition to increasing demand for airborne sensors, Desert Storm also ushered in an era of increased reliance on space-based capabilities. Air Force Chief of Staff General Merrill McPeak went as far as to declare the Gulf War as “the first space war.”⁶⁴ Space-based collection assets provided a valuable vantage point into enemy territory denied to airborne sensors. The JFACC would normally not receive operational control of these sensors, however, due to their status as national assets supporting multiple commands and components. While not directly tasked by the air component, ISR airmen within the AOC were expected to coordinate and forward requests for national support to meet theater requirements.⁶⁵ Despite a lack of direct control, space-based sensors remained an important component of Air Force ISR consciousness. The ability to employ and network this collection of emerging airborne and space-based capabilities would be put to the test during NATO’s first air war.

Conclusion

In the decade following the Gulf War, the Air Force sought to capitalize on its resounding operational success by positioning itself as the preeminent instrument of US military power. The networked ISR capabilities defining the new era of information age warfare, however, were still in their infancy and needed more refinement before they could be truly integrated into an air campaign. Furthermore, future enemies would unlikely prove as inept and accommodating as the Iraqi leadership faced by coalition forces in the deserts of Iraq. Nevertheless, the Air Force had positioned itself as a desirable policy instrument for dealing with future crises.

As the decade neared its end, the Air Force found itself enamored with the idea of precisely destroying specific targets to cripple enemy

⁶⁴ Lambeth, *Transformation of American Air Power*, 237.

⁶⁵ AFDD 2-5.2, 51.

command systems. In future wars, the Air Force recognized these targets would be increasingly fleeting requiring new approaches to prosecuting air campaigns. Not least among these requirements was the need for timely and precise intelligence delivered to strike aircraft. The complicated political and physical environment of Yugoslavia would ultimately put these concepts and capabilities to the test.



Chapter 3

Coercion from Above: NATO Air Power Arrives in the Balkans

Kosovo is important for us emotionally. As a part of this country, this is the heart of the country. We shall never give away Kosovo

Slobodan Milosevic
December 13, 1998

I do not believe that we ought to have thousands more people slaughtered and buried in open soccer fields before we do something. I think that would be unfortunate if we had said we have to have a lot more victims before we can stop what we know is about to happen.

President Bill Clinton
March 19, 1999

While the Air Force was reveling in its post-Gulf War renaissance, on the other side of the world the fragile Federal Republic of Yugoslavia was spiraling into chaos. A renewed focus on ethnic identity politics played on the long history of internal strife in the Balkans. In the form of warfare that emerged, belligerent parties were less interested in fighting opposing militaries and instead focused irregular forces on controlling civilian populations. In this new security environment, the North Atlantic Treaty Organization (NATO) launched a series of air actions to deal with the deteriorating situation. Beginning with the protection of United Nations (UN) humanitarian operations, the nature of NATO air operations eventually evolved into campaigns of coercion. These efforts first sought to stop Bosnian Serb aggression against UN safe areas and later focused on ending the Serbian ethnic cleansing of Kosovar Albanians. The character of these new wars presented difficulties for an intelligence architecture built to understand traditional military targets.

Old Battles and New Wars: A Brief History of Conflict in Yugoslavia

During the 1990s, the fragile confederation of Yugoslavia once held together by strong man Josip Tito began to unravel in a fit of violence and disorder. The historic animosity between ethnic groups, especially the Serbs and Kosovar Albanians, became weapons in the arsenal of politicians seeking to shore up their power in the face of increased uncertainty. This phenomenon of identity politics ushered in a wave of violence distinct from Cold War patterns of warfare. The nature of this ethnic conflict would present major targeting challenges to the airmen and intelligence professionals who would eventually carry out a series of air campaigns over the Balkans.

The Serbian people harbored strong ethno-nationalist ties to the territory of Kosovo dating back to the fourteenth century. In 1389 the Ottoman Empire defeated Serbian forces at the Battle of Kosovo creating an important cultural touchstone for the Serbs.¹ The battle inspired a tradition of epic poetry, which, along with the power of the Serbian Orthodox Church, ensured the persistence of a distinct Serbian ethno-nationalism into the modern period. Kosovo became further intertwined with Serbian identity during the Great Migration of 1690. During this historic episode, large Serbian populations migrated out of Kosovo to the sparsely populated areas of modern day Serbia in the face of Ottoman conquest. By the end of the eighteenth century, a majority of Kosovo's population was ethnic Albanian and increasingly Muslim.² Over the next

¹ Karl Mueller, "The Demise of Yugoslavia and the Destruction of Bosnia: Strategic Causes, Effects, and Responses," in *Deliberate Force: A Case Study in Effective Air Campaigning*, ed. Col Robert C. Owen (Maxwell AFB, AL: Air University Press, 2000), 7.

² John R. Lampe, *Yugoslavia as History: Twice There Was a Country Second Edition* (Cambridge, UK: Cambridge University Press, 2000), 25-26.

three centuries, Albanian and Serbian populations would continue a precarious coexistence in the simmering ethnic cauldron of Kosovo.

Both external challenges and internal government policies continued to exacerbate the contentious relationship between Serbia and Kosovo into the twentieth century. During World War I, the hardships of Serbia's 1915 winter campaign became an important part of national memory, which included harassment by Albanians in Kosovo during a dismal Serbian retreat.³ During the 1920s, a Serb-dominated parliamentary kingdom uniting the Serbs, Croats, and Slovenes largely ignored the minority rights of Albanians in Kosovo. In fact, the Belgrade government developed a program to repopulate Kosovo with Serbian settlements resulting in an estimated 40,000 to 80,000 émigrés.⁴ A system of gerrymandering followed to ensure none of Kosovo's four districts could claim an Albanian majority.⁵ Thus, the two rival ethnic groups remained intermingled within close proximity to each other in the province of Kosovo.

During the Second World War, Serbia again bore the brunt of German aggression, and the war caused additional strain between the people of Serbia and Kosovo. In Italian-occupied Kosovo, Albanian Kosovars targeted Serb families who had emigrated during the interwar period triggering a wave of refugee migration.⁶ When the Communist forces of Josip Tito emerged as the dominant Yugoslav force, many Albanian Kosovars feared a reciprocal wave of Serbian oppression and launched a resistance movement in December 1944. Ultimately, the Communists pacified the resistance in 1945 and severely limited the local autonomy of Kosovo.⁷ Kosovo would later gain increased autonomy under communist rule, but only after a series of violent protests in

³ Lampe, *Yugoslavia as History*, 104.

⁴ Lampe, *Yugoslavia as History*, 151.

⁵ Lampe, *Yugoslavia as History*, 133.

⁶ Lampe, *Yugoslavia as History*, 207-208.

⁷ Lampe, *Yugoslavia as History*, 226-228.

1968.⁸ While the nation of Yugoslavia remained united throughout the communist period, a desire for ethnic Albanian autonomy from Serb control continued to simmer beneath the surface.

The 1980s witnessed the death of one Yugoslav leader and the rise of another setting the stage for ethnic dissolution in the 1990s. On May 4, 1980, President Tito died after a 35-year reign. Throughout the 1980s, a series of Albanian protests, sometimes violent, continued to occur and were often followed by Serbian-led crackdowns. The status of Kosovo remained a serious political question with Serbian residents demanding more attention from Belgrade.⁹ In April 1987, Slobodan Milosevic, then the leader of the Serbian Communist Party, travelled to Kosovo where he implored the Serbian citizens to remain in the province. During a speech in a Serbian suburb of Pristina, he declared, “Yugoslavia disintegrates without Kosovo. Yugoslavia and Serbia will not give away Kosovo.”¹⁰ Shortly after this trip, Milosevic began an aggressive campaign to consolidate his political power.¹¹ In March 1989, Belgrade rescinded the measures of autonomy previously granted to Kosovo.¹² In 1990 Milosevic would rise to the presidency of Serbia.¹³ Thus, Milosevic’s rise to power began with a strong assertion against an independent Kosovo and an emphasis on Serbian nationalism.

During the 1990s, growing ethnic divisions led to the dissolution of Yugoslavia and continued tensions in Kosovo. Slovenia and Croatia both declared independence from the Serb-dominated Yugoslav federation in

⁸ Lampe, *Yugoslavia as History*, 303-304.

⁹ Philip E. Auerswald and David P. Auerswald, eds., *The Kosovo Conflict: A Diplomatic History through Documents* (The Hague, The Netherlands: Kluwer Law International, 2000), xxv.

¹⁰ Auerswald, *The Kosovo Conflict*, 10-16.

¹¹ Auerswald, *The Kosovo Conflict*, 4.

¹² Dag Henriksen, *NATO’s Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999* (Annapolis, MD: Naval Institute Press, 2007), 123.

¹³ Auerswald, *The Kosovo Conflict*, 6.

June 1991. This triggered a series of conflicts that would eventually extend into Bosnia.¹⁴ The Bosnian conflict from 1992 to 1995 witnessed the first commitment of NATO forces in Yugoslavia. In addition to the breakaway wars occurring throughout the rest of Yugoslavia, unrest continued in Kosovo. On September 22, 1991, the self-constituted Assembly of Kosovo declared the Republic of Kosovo as an independent and sovereign state, and six days later Albania recognized Kosovo's independent status.¹⁵ This independence movement would sow the seeds of the eventual conflict between Serbia and NATO at the end of the decade.

The eruption of the Balkan wars of the 1990s presented an emerging security problem the West was not prepared to handle. Political scientist Mary Kaldor identified the conflicts in Yugoslavia as the archetype of what she dubbed "new war."¹⁶ Contrasted with the "old war" tradition associated with Carl von Clausewitz, Kaldor's new war model is defined by a change in the prevailing ends, ways, and means of warfare in the post-Cold War, globalized world.¹⁷ The objectives of new war were no longer rooted in achieving geopolitical or ideological goals but rather based on a clash of identities.¹⁸ New war also embodied a shift in the methods of warfare whereby military force was increasingly directed against civilian populations rather than opposing enemy positions. Furthermore, these new military forces represented a heterogeneous mix of regular government armies, paramilitary units, private militias, and even criminal gangs.¹⁹ For Kaldor, this new type of

¹⁴ Lampe, *Yugoslavia as History*, 369-373.

¹⁵ Auerswald, *The Kosovo Conflict*, 55-56.

¹⁶ Mary Kaldor, *New and Old Wars: Organized Violence in a Global Era* (Stanford, CA: Stanford University Press, 2012), 32.

¹⁷ Kaldor, *New and Old Wars*, 16-17.

¹⁸ Kaldor, *New and Old Wars*, 7-8.

¹⁹ Kaldor, *New and Old Wars*, 9.

conflict required a fundamental reassessment of how governments should approach military intervention.

The emergence of these new war conditions in Yugoslavia proved problematic for a coercive military strategy based on aerial bombardment. Potential adversaries and allies were now intricately intermingled in close proximity to one another. Unlike in the deserts of Kuwait, no clear demarcation line indicated a separation between combatants. In Yugoslavia, not only were the frontlines not clearly evident, but also military forces increasingly focused on controlling civilian populations rather than fighting opposing combatants.²⁰ The ability for small irregular units to disperse into civilian populations to conduct campaigns of ethnic cleansing would present significant target acquisition problems for NATO air forces.²¹ Even when targets could be identified, their proximity to the civilian populations NATO sought to protect created concerns for collateral damage.²² These problems emerged in the context of the war in Bosnia during the early 1990s and would extend into the conflict over Kosovo.

During the course of the 1990s, the situation throughout the former Yugoslavia represented an uncomfortable security challenge for the rest of Europe and the United States. The deep ethnic divisions cultivated over centuries of tumult were unleashed in a wave of violence. These old animosities surfaced in a new form of warfare pitting loosely organized armed factions against civilian populations in a milieu of ethnic conflict. Western militaries built to counter traditional state-based threats were ill suited for such a challenge. In this complex environment, NATO airmen faced targeting challenges as they attempted to implement a strategy of coercion against the Serbian regime.

²⁰ Kaldor, *New and Old Wars*, 51.

²¹ Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 120.

²² Lambeth, *NATO's Air War for Kosovo*, 136.

Toward a Coercive Strategy: NATO Intervenes in Yugoslavia

The deteriorating conditions in Yugoslavia eventually triggered a NATO response utilizing air power as an instrument of coercion. NATO's use of air power can be explained through the lens of coercion theory. As conflict in the Balkans became increasingly linked to NATO's credibility, the air weapon moved to the forefront of alliance policy. The brief bombing campaign in Bosnia known as Operation Deliberate Force established important precedents for leveraging air power for diplomatic effect. This model of a short coercive air campaign resonated with NATO leaders as the confrontation with Milosevic's regime over Kosovo intensified.

During the heart of the Cold War, RAND analyst Thomas Schelling sought to make sense of military strategy in an age of superpower competition and opposing nuclear arsenals. Schelling introduced the concept of coercion as an alternative to brute force military strategies. In Schelling's construct, a state could achieve its desired objective through the threat of "latent violence" rather than an overwhelming application of force.²³ While Schelling's analysis sought to make sense of a world living in the shadow of nuclear conflict, the idea of coercion strategy persisted into the post-Cold War era. Following the Yugoslav wars, RAND analysts Daniel Byman and Matthew Waxman offered a model of coercion based on the lessons of US military intervention in the decade following the Cold War. Their work provides a conceptual framework for approaching coercion strategies based on linking coercive instruments to desired outcomes through coercive mechanisms.²⁴

²³ Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 2-3.

²⁴ Daniel Byman and Matthew Waxman, *The Dynamics of Coercion: American Foreign Policy and the Limits of Military Might* (Cambridge, UK: Cambridge University Press, 2002), 27.

Coercive mechanisms represent a cognitive bridge between policy objectives and action. Without this link, it is unclear how a specific action such as an air strike will help actualize a policy goal such as the cessation of hostilities by an aggressor. Byman and Waxman offer five potential mechanisms commonly invoked by coercers. First, power base erosion refers to exerting pressure on the support network of elites most closely associated with a target regime.²⁵ Alternatively, a coercer can target the wider civilian population to incite unrest, but this approach is typically difficult to accomplish against an authoritarian regime exercising tight control over the distribution of information.²⁶ Decapitation involves directly threatening the lives of enemy leadership but risks violating international norms against assassination.²⁷ Rather than targeting specific entities, another mechanism involves attacking infrastructure to weaken the target country as a whole, such as with broad economic sanctions.²⁸ Finally, coercion through denial can be achieved by reducing the enemy's ability to gain a military victory.²⁹ Each of these mechanisms of coercion presents unique strengths and limitations and must be evaluated in light of the target state and the desired outcome. NATO would ultimately employ various combinations of these mechanisms in its air actions in the Balkans.

NATO's air activity in Yugoslavia began as a protective measure for UN peacekeeping operations and only incrementally evolved into an instrument of coercion. In the spring of 1992, the UN began deploying a peacekeeping force known as the UN Protection Force (UNPROFOR) to the Balkans with the mission of safeguarding the delivery of humanitarian relief supplies. The mission primarily focused on the war-torn country of Bosnia, which was then witnessing intense ethnic

²⁵ Byman and Waxman, *The Dynamics of Coercion*, 59.

²⁶ Byman and Waxman, *The Dynamics of Coercion*, 65, 71.

²⁷ Byman and Waxman, *The Dynamics of Coercion*, 72-75.

²⁸ Byman and Waxman, *The Dynamics of Coercion*, 76-77.

²⁹ Byman and Waxman, *The Dynamics of Coercion*, 78.

fighting between Bosnian Croats, Muslims, and Serbs.³⁰ In October 1992 the UN declared a no-fly zone over Bosnia to enable humanitarian efforts, which NATO agreed to support with its air forces in December. In practice, NATO enforcement of the no fly zone, designated Operation Deny Flight, began in April 1993.³¹ The subsequent linking of the UNPROFOR ground forces to NATO air operations formed the basis for a coercive air strategy over Yugoslavia.

As 1993 wore on, UNPROFOR commanders found themselves in a difficult position as they lacked the forces necessary to carry out their mandate of humanitarian protection.³² In order to offset this imbalance, the NATO mission expanded to not only enforce the no fly zone from offending aircraft but also to provide close air support to UNPROFOR troops on the ground. In August 1993, the mandate once again expanded to include an option for deterrent or retaliatory strikes to further protect the UNPROFOR peacekeepers.³³ Authorizing such air strikes required dual authorization by both the UN and NATO commanders.³⁴ This also required the intelligence to justify strikes for both parties. While this new mandate created the possibility for coercive air strikes against the Bosnian Serbs who were widely viewed as aggressors by NATO, it would be two more years before such a campaign would be realized.

On 30 August 1995, NATO launched Operation Deliberate Force, a coercive air campaign to bring a diplomatic solution to the ethnic conflict in Bosnia. NATO and UN commanders concurred on the use of force following the shelling of a Sarajevo marketplace by Bosnian Serb

³⁰ Mueller, "The Demise of Yugoslavia," 16-19.

³¹ Col Mark A. Bucknam, *Responsibility of Command: How UN and NATO Commanders Influenced Airpower over Bosnia* (Maxwell AFB, AL: Air University Press, 2003), 61-62.

³² Bucknam, *Responsibility of Command*, 73.

³³ Mueller, "The Demise of Yugoslavia," 19.

³⁴ Henriksen, *NATO's Gamble*, 98.

artillery.³⁵ Within Byman and Waxman's taxonomy of coercive mechanisms, Deliberate Force represented a campaign of military denial. In his work on air power coercion, Robert Pape describes denial campaigns as those designed to weaken enemy military capability in order to prevent the achievement of their political objectives.³⁶ According to the NATO air commander Lt Gen Michael Ryan, the Deliberate Force air campaign was "not intended to defeat the BSA [Bosnian Serb army] but to convince the BSA to stop attacking Sarajevo—to take away military capability, not lives."³⁷ Such a declaration echoed Schelling's ideas about the power of coercion short of full-scale war. NATO's final targeting plan consisted of first degrading the Bosnian Serb air defenses to enable air superiority and subsequently attacking BSA military capabilities. This denial of military capability consisted of attacking both fielded troop formations as well as supporting military infrastructure.³⁸

The denial campaign against the Bosnian Serbs ultimately proved successful. Through attacks on their military capabilities, the BSA was denied its military strategy of ethnic cleansing. Furthermore, they lost the support of their main political sponsor, Slobodan Milosevic.³⁹ At this time Milosevic was president of Serbia, and he would later go on to become the president of the Federal Yugoslav Republic in 1997.⁴⁰ On September 14, 1995, the Bosnian Serb leaders indicated their acceptance of international demands. The NATO and UN commanders officially

³⁵ Lt Col Mark J. Conversino, "Executing Deliberate Force, 30 August-14 September 1995," in ed. Owen, *Deliberate Force*, 131.

³⁶ Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), 69.

³⁷ Quoted in Maj Mark C. McLaughlin, "Assessing the Effectiveness of Deliberate Force: Harnessing the Political-Military Connection," in ed. Owen, *Deliberate Force*, 190.

³⁸ Lt Col Richard L. Sargent, "Deliberate Force Targeting," in ed. Owen, *Deliberate Force*, 289-290.

³⁹ Henriksen, *NATO's Gamble*, 111.

⁴⁰ Auerswald, *The Kosovo Conflict*, 9.

declared Deliberate Force complete on September 20th.⁴¹ In November, the warring parties met in Dayton, Ohio and agreed to the General Framework Agreement for Peace in Bosnia and Herzegovina.⁴² Utilizing the coercive mechanism of denial, enabled through the coercive instrument of air strikes, NATO achieved its policy goal of stopping Bosnian Serb aggression.

The experience in Bosnia continued to influence NATO leaders' approach to dealing with security issues in the Balkans. The Dayton Accords of 1995 failed to end ethnic strife in the former Yugoslavia, as Milosevic's Serbian forces grew increasingly hostile toward the ethnic Albanian population of Kosovo. From their experience in Deliberate Force, NATO leaders gained confidence in the effectiveness of air strikes to enable diplomatic solutions. Many leaders specifically associated the susceptibility to coercion through aerial bombardment with Milosevic who emerged as the central Serbian powerbroker in Dayton.⁴³ Unfortunately, this interpretation ignored other important contributing factors in Bosnia, such as the ongoing economic embargo against Serbia, the war weariness of the combatants, and the strength of the opposing ground offensive.⁴⁴ Despite the differences in circumstances, NATO leaders would again seek to employ air power as a coercive instrument as a confrontation with Milosevic over Kosovo loomed.

NATO's Coercive Strategy and Implications for Intelligence

NATO's coercive air operations in the Balkans presented significant obstacles for allied intelligence. These challenges originated from the very nature of an enemy much less susceptible to traditional ISR collection methods. Additional challenges emerged from the coercive

⁴¹ Conversino, "Executing Deliberate Force," 157-158.

⁴² Auerswald, *The Kosovo Conflict*, 75.

⁴³ Henriksen, *NATO's Gamble*, 120.

⁴⁴ Henriksen, *NATO's Gamble*, 110-115.

mechanisms favored by the alliance, which required detailed intelligence for both targeting and assessment. Finally, the physical environment imposed additional limitations of the effectiveness of intelligence operations. The confluence of these factors created a challenging situation for ISR operations as the air war against Serbia unfolded.

The nature of military intelligence has historically been focused on learning the disposition of enemy forces. The irregular nature of NATO's Serbian foes made identifying military targets extremely challenging. The success of coercion by denial in Deliberate Force can be partially credited to the combined Croat-Muslim ground offensive, which compelled Bosnian Serb forces to mass for traditional force-on-force battles. This massing of troops eased the problem of target identification.⁴⁵ Even with the benefit of a pseudo-friendly ground offensive, however, the targeting of heavy weapons still proved difficult within the rough terrain and urban areas of Bosnia.⁴⁶ During Allied Force, the problem of finding mobile targets would become even more pronounced without the benefit of a supporting ground campaign.

A lack of concentration of regular forces in Kosovo significantly complicated the ability of ISR to support dynamic targeting. Serbian forces consisted of a mixture of regular Yugoslav army units, Ministry of Interior police, and local paramilitary organizations. The local paramilitary forces were often the most vicious in carrying out ethnic cleansing of Kosovar Albanians, but their irregular nature also made them some of the most difficult to locate and discriminate through targeting intelligence.⁴⁷ The local and dispersed nature of operations also called into question the efficacy of targeting military command and control infrastructure if these units were largely autonomous. The Air

⁴⁵ McLaughlin, "Assessing the Effectiveness of Deliberate Force," 194.

⁴⁶ Sargent, "Deliberate Force Targeting," 292.

⁴⁷ Headquarters, US Air Force, *The Air War Over Serbia: Aerospace Power in Operation Allied Force Initial Report*, (Washington, D.C.: Department of the Air Force, April 2000), 11.

Force's targeting experience in Desert Storm would again provide a dubious analogy for air combat in Kosovo.

NATO's chosen coercive mechanisms also affected the quality of intelligence support to air operations. An important difference between Deliberate Force and the subsequent air campaign in Kosovo was the coercive mechanism underpinning NATO strategy. As previously described, the coercive mechanism used in Bosnia was the denial of the BSA's military strategy. In Kosovo, NATO began air operations without a clear mechanism linking the objective of stopping ethnic violence with the instrument of air power.⁴⁸ When the initial wave of air strikes failed to persuade Milosevic, NATO's air war evolved into a combination of two coercive mechanisms. Lieutenant General Michael Short, the overall air commander, favored a power base erosion strategy enabled by strategic attacks against Serbian leadership and infrastructure in the vicinity of Belgrade.⁴⁹ The theater commander, General Wesley Clark, pushed for more attacks against Serbian ground forces conducting the ethnic cleansing campaign in Kosovo.⁵⁰ Clark's proposed target set indicated a preference for a denial campaign to prevent Milosevic from achieving his objectives in Kosovo through military force. Both strategies would be pursued concurrently for the remainder of the war.

Both coercive mechanisms, power base erosion and denial, presented difficulties for NATO intelligence. A power base erosion campaign assumed a level of knowledge about Milosevic's incentives for continuing to fight. Even after the conflict, the exact machinations of Milosevic's decision calculus remain widely debated.⁵¹ Conversely,

⁴⁸ Henriksen, *NATO's Gamble*, 3-5.

⁴⁹ John A. Tirpak, "Short's View of the Air Campaign," *Air Force Magazine*, September 1999, 43.

⁵⁰ Wesley K. Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Conflict* (New York: Public Affairs, 2002), 198.

⁵¹ See Lambeth, *NATO's Air War for Kosovo*; Daniel Byman and Matthew Waxman, "Kosovo and the Great Air Power Debate," *International Security*

intelligence support for a denial campaign against the Serbian forces in Kosovo proved difficult for all the reasons already mentioned, particularly, the dispersal of largely irregular forces capable of blending into both the human and physical geography of the country. As NATO settled on a strategy of coercion, the ability for intelligence to support coercive mechanisms was strained.

In addition to the nature of the enemy and friendly strategy, environmental factors also limited the effectiveness of ISR operations in Serbia and Kosovo. The hilly and forested terrain of Kosovo created an ideal environment for the Serbian's cat and mouse game against Allied airmen. They used "woods, tunnels and caves, civilian homes and barns, and schools, factories, monasteries, and other large buildings to hide their personnel and weapons."⁵² In addition to the difficult terrain, weather would also severely impact air operations over Serbia and Kosovo. By the end of the conflict it was assessed that only 24 of the 78 days presented unimpeded weather conditions for allied operations.⁵³ Although some ISR capabilities, such as radar imaging provided an all weather surveillance capability, these methods presented difficulties in positively identifying targets. Despite advancements in technology, the age-old factors of terrain and weather still remained a challenge for Allied airmen.

24, 2001; Anthony Cordesman, *The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo* (Westport, CT: Praeger, 2001); Ivo N. Daadler and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington D.C.: Brookings Institution Press, 2000); Phil Haun, *Coercion, Survival, and War: Why Weak States Resist the United States* (Stanford, CA: Stanford University Press, 2015).

⁵² Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report* (Washington, D.C.: Department of Defense, January 2000), 62

⁵³ Department of Defense, *Kosovo After-Action Report*, 60.

Conclusion

Throughout the 1990s, Yugoslavia suffered a continuous succession of ethnic conflicts. These new wars played on preexisting ethno-nationalist identities but were unique in the violence perpetrated by amalgamations of irregular forces to control civilian populations. Within this complicated security environment, NATO entered the fray with its air forces to provide support to UN humanitarian operations. These protective air operations eventually morphed into coercive air campaigns as NATO sought to bring stability to these war-torn areas.

While NATO shifted its focus to strategies of coercion, the intelligence required to support these operations proved increasingly complicated. Myriad factors challenged the implementation of NATO's intelligence collection, including the nature of the new enemy, the underpinnings of coercive mechanisms, and environmental constraints. These challenges had not dimmed as NATO airmen began planning coercive air operations to address the aggression of Slobodan Milosevic's forces in Kosovo in 1998.

Chapter 4

Prelude to the Air Campaign, May 1998 – March 1999

No one starts a war—or rather, no one in his senses ought to do so—without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it. The former is its political purpose; the latter its operational objective.

Carl von Clausewitz
On War

Remember it the way it is today. If you force me to go to war against you, Belgrade will never look that way again—never in your lifetime or your children's lifetime. Belgrade and your country will be destroyed if you force me to go to war.

Lieutenant General Michael C. Short
to Serbian military leaders during
pre-war negotiations in Belgrade

During the summer of 1998 Slobodan Milosevic entered an increasingly dangerous game of brinksmanship with NATO. In the end both sides miscalculated, initiating the first major combat action in NATO's 50-year history. The resulting campaign highlighted the importance of integration between intelligence and operations in modern air war. For Allied Force, dedicated air intelligence analysis was integrated into the planning processes from the earliest stages. As the war grew closer, intelligence airmen developed concepts for how intelligence should be integrated into operations in the event of conflict. Eventually, these ideas were operationalized through the air war's command and control system headquartered at NATO's Combined Air Operations Center (CAOC) in Italy.

During previous operations in the Balkans, NATO adopted coercive air strategies for compelling noncompliant actors. This pattern continued into Allied Force. The prosecution of a coercive strategy is highly dependent on understanding what should be targeted in order for the enemy to be coerced. This targeting process is in turn dependent on quality intelligence. Therefore, the development of the coercive air campaign for Serbia highlighted the necessity of actively linking intelligence and air operations.

The Road to War:

Early Planning Efforts and Serbian Intransigence

As the violence in Kosovo escalated, NATO began to prepare for the eventuality of conflict. Based on the Bosnia experience, senior NATO leaders were convinced Milosevic would acquiesce to international demands when threatened with violent action. In this context, American airmen began planning efforts to link an air campaign to a strategy of coercion aimed at the Milosevic regime. Theater intelligence aided this planning effort by providing target analysis for these coercive air strikes. Ultimately, the initial American proposals were deemed too aggressive to garner NATO approval. As the likelihood of a diplomatic solution in Kosovo dimmed, NATO struggled to develop a suitable air plan to provide military leverage against Serbia.

In early 1998 the situation in Kosovo grew increasingly unstable and garnered more attention from NATO leaders. Many Kosovar Albanians became frustrated with their leaders' efforts at passive resistance and viewed the Dayton Accords of 1995 as confirmation that only active military resistance would earn the attention of Western powers. This growing sentiment of disaffection was exacerbated by the disintegration of the Albanian government in 1997, which triggered an influx of weapons to the

Kosovo Liberation Army (KLA), the primary militant group resisting Serb aggression.¹ Serbian forces responded to increased KLA attacks by killing Kosovar civilians under the premise of a counterterrorism campaign.² General Wesley Clark, serving as both the overall commander of US forces in Europe as well as NATO's Supreme Allied Commander Europe (SACEUR), thought the threat of NATO air strikes could be used as leverage to reach a diplomatic agreement with Milosevic to end the violence.³ Clark's ideas about the efficacy of coercion through air strikes were based on his previous experience as a military advisor during the peace negotiations in Dayton.⁴ As the commander of NATO forces, Clark now needed a viable plan to link his objective of ending the violence in Kosovo with the available coercive instrument of air power.

In the summer of 1998, the US Air Forces in Europe (USAFE) staff emerged as the central hub for planning the future air war. In May 1998 General Clark directed General John Jumper to develop an air plan for potential punitive strikes against Serbian military communications networks.⁵ As the commander of USAFE, Jumper led an organization encompassing the forces, infrastructure, and planning expertise to make him a central player in developing and executing any major US-led air campaign

¹ Dag Henriksen, *NATO's Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999* (Annapolis, MD: Naval Institute Press, 2007), 124-125.

² Ivo N. Daadler and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington D.C.: Brookings Institution Press, 2000), 27-28.

³ Wesley K. Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Conflict* (New York: Public Affairs, 2002), 116-118.

⁴ Henriksen, *NATO's Gamble*, 81-83.

⁵ Headquarters US Air Force (USAF), *The Air War Over Serbia (AWOS): Aerospace Power in Operation Allied Force Initial Report*, (Washington, D.C.: Department of the Air Force, April 2000), 7.

in Europe.⁶ Jumper also served an important advisory role to Clark as the senior US airmen in theater.⁷ USAFE's 32nd Air Operations Group (32 AOG) commanded by Colonel Allen Peck led the US air planning effort. Peck's staff developed an initial targeting plan and rehearsed it at the Warrior Preparation Center in Germany during an exercise known as Nimble Lion.⁸ Nimble Lion represented the first efforts to link coercive mechanisms to air action in Serbia.

The development of tailored targeting intelligence enabled the 32 AOG staff to develop their air campaign plan. The primary intelligence organization supporting the air planning effort was the 32nd Air Intelligence Squadron (32 AIS) at Ramstein, a subordinate unit to the 32 AOG. Unlike Central Air Force's 9th Tactical Intelligence Squadron in Desert Storm, the 32 AIS was fully integrated into planning from the earliest stages of campaign development. During the initial planning sessions in May, the unit conducted target development identifying 358 potential targets for Nimble Lion.⁹ Because previous air operations in the Balkans had focused primarily on Bosnia, detailed target folders did not exist for Serbia.¹⁰ Colonel Peck described the initial intelligence effort as a "standing start" based on the lack of available information on potential Serbian targets.¹¹ After receiving expanded authority from the intelligence director at US European Command, the 32

⁶ Headquarters USAF, *AWOS Initial Report*, 7.

⁷ Clark, *Waging Modern War*, 195.

⁸ Headquarters USAF, *AWOS Initial Report*, 8.

⁹ Headquarters USAF, *The Air War Over Serbia (AWOS): Aerospace Power in Operation Allied Force Volume 1 Decisive Aerospace Operations* (U) (Washington D.C.: Department of the Air Force, October 2000), 30. (SECRET/NOFORN) Information extracted is unclassified.

¹⁰ Col Ed Boyle, interview by the author, 28 February 2017.

¹¹ Lt Gen Allen Peck, interview by the author, 16 August 2016.

AIS took the lead in building the required targeting data to support a full-fledged air campaign.¹² This preparation laid the foundation for the intelligence effort supporting combat operations the following year.

Early efforts to synchronize US and NATO efforts met with complications. After its development in May 1998, Jumper endorsed the Nimble Lion air plan and briefed it to General Clark. Ultimately, NATO's North Atlantic Council (NAC) disapproved the plan in June.¹³ Many of the NATO representatives felt the plan was "too large and too threatening," especially given the lack of a United Nations mandate for military action against Serbia.¹⁴ Many European statesmen apparently did not share the US Air Force's preference for overwhelming parallel attacks in the vein of Warden's Instant Thunder plan. Out of the 358 targets identified by the American planners, the NAC approved only 32 for a potential strike option.¹⁵ Based on feedback from the NAC, NATO planners went on to develop two potential strike options for Serbia. The first was a "Limited Air Option" consisting of a small number of cruise missile strikes available for a short-notice response to any specific incident in Kosovo.¹⁶ The second option provided a framework for gradually escalating a multi-phased air campaign against a wider array of targets to suppress enemy air defenses and neutralize major portions of the Serbian military.¹⁷ The limited and gradual nature of these plans marked a difference in

¹² Boyle, interview.

¹³ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 30.

¹⁴ Henriksen, *NATO's Gamble*, 145.

¹⁵ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 30.

¹⁶ Henriksen, *NATO's Gamble*, 145.

¹⁷ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 30-31.

the preferred US Air Force and NATO approaches to a potential air war.

While the USAFE and NATO staffs worked on the prospective air campaign, diplomatic efforts to resolve the crisis in Kosovo continued to progress. At a defense ministers meeting in September, NATO issued Activation Warnings (ACTWARNs) for the limited and phased air options, publicly declaring their willingness to put military pressure on Milosevic.¹⁸ In October 1998 under the threat of these ACTWARNs, the diplomatic efforts of Ambassador Richard Holbrooke, General Clark, and NATO Military Committee Chairman General Klaus Naumann ended in a tentative agreement with Serbian officials. President Milosevic agreed to begin withdrawing forces from Kosovo, as well as consenting to a NATO air surveillance mission to ensure compliance. With this agreement in place, the NAC chose not to cancel the previous ACTWARNs for the limited and phased air options to keep pressure on Milosevic to live up to the deal. This also allowed target development and planning to continue if military force became necessary.¹⁹ The negotiators had apparently swayed Milosevic into compliance with their coercive threats.

Despite this negotiated ceasefire arrangement, however, skirmishes between Serb forces and the KLA continued. As part of the October deal, Milosevic agreed to the deployment of the Kosovo Verification Mission (KVM), a 2,000-person civilian team on the ground to verify compliance.²⁰ In January, the KVM discovered an apparent massacre of Albanian civilians in the village of Racak. Although the exact circumstances surrounding Racak were

¹⁸ Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report* (Washington, D.C.: Department of Defense, January 2000), 21.

¹⁹ Department of Defense, *Kosovo After-Action Report*, 22.

²⁰ Henriksen, *NATO's Gamble*, 154.

disputed, news of the event reverberated in the halls of power throughout Europe and Washington.²¹ The Contact Group called for representatives from the Serbian government and the Kosovar Albanians to meet at Rambouillet, France in February 1999 and enter into renewed negotiations.²² While the Kosovar representatives agreed to the new proposal in March, the Serb delegation remained intransigent and negotiations broke down. Following the collapse of talks, General Clark ordered a renewed study of air options, specifically focusing on two-day campaign striking targets throughout Serbia in an effort to coerce Milosevic to withdraw forces from Kosovo.²³ With the failure of the Rambouillet talks, the need for NATO military action to resolve the crisis became more apparent.

In March 1999, Jumper ordered the 32 AOG to produce another more refined air plan to address the Serbia problem, which became known as Allied Talon. The 32 AOG planners along with their targeting intelligence professionals identified 259 targets designed to achieve air superiority, coerce Serbian leadership through attack of high value targets, and degrade offensive Serbian military capability.²⁴ In Byman and Waxman's nomenclature such a campaign could provide both military denial and power base erosion mechanisms for coercing Milosevic.²⁵ The Air Force's official report on Kosovo concluded that the Allied Talon plan developed by the 32 AOG and presented to General Clark by General Jumper clearly linked selected targets to the desired end

²¹ Henriksen, *NATO's Gamble*, 162-165.

²² Department of Defense, *Kosovo After-Action Report*, 22.

²³ Department of Defense, *Kosovo After-Action Report*, 23.

²⁴ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 32.

²⁵ Daniel Byman and Matthew Waxman, *The Dynamics of Coercion: American Foreign Policy and the Limits of Military Might* (Cambridge, UK: Cambridge University Press, 2002), 59-63, 78-82.

state of bringing Serbia into compliance with international demands. The resulting 51 targets eventually approved by NATO, however, lacked operational linkages to desired strategic effects.²⁶ The prevailing attitude among political leaders was that a few days of strikes would demonstrate resolve and bring Milosevic back to the bargaining table.²⁷ This belief presumably negated any desire for a long-term strategy linking targeting to desired effects at the political level. Although Jumper presented the Allied Talon plan to Clark just days prior to the kickoff of Allied Force, the expectations for a short war and heightened concerns over collateral damage kept the plan on the shelf.

As NATO moved closer to war with Serbia, the operational commander, General Clark, still lacked a coherent strategy to achieve the desired effects using the preferred coercive mechanism of air strikes. General Jumper and his USAFE staff provided a series of air plans based on rapidly applying overwhelming force linking targets to coercive objectives. This approach, however, failed to resonate in the prevailing political climate. As a result, NATO would enter the war with only a few preapproved targets, requiring the gradual escalation of pressure as the war played out.

Integrating Intelligence into the Air Campaign

The efforts of the 32 AIS leading up to Allied Force demonstrated the importance of integrating target intelligence into air campaign planning, but targeting was only one aspect of intelligence support for air operations. Additionally, airmen required a plan to continue to integrate updated intelligence collection throughout the execution of the air campaign as the situation developed. During Allied Force, Colonel Ed Boyle, the

²⁶ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 32.

²⁷ Daadler and O'Hanlon, *Winning Ugly*, 91.

senior intelligence officer in USAFE, played a central role in developing the plan for integrating intelligence, surveillance, and reconnaissance (ISR) into air operations. Boyle's philosophy rested on a temporal approach for prioritizing intelligence to various audiences based on required time horizons. Boyle also provided specific direction to collection managers for the integration of airborne and space-based intelligence assets. These principles set the foundation for ISR integration during the war.

Colonel Boyle emphasized the importance of integrating intelligence into air operations. He became the Director of Intelligence for USAFE in July 1998 reporting directly to General Jumper as the functional head for all intelligence issues in the command.²⁸ Air Force doctrine at the time identified the air component commander as the provider of integrated ISR for the overall Joint Force Commander.²⁹ This meant the air component would have the lead for directing ISR operations, but it did not stipulate how this mission should be accomplished. The intelligence produced by these operations was required to serve multiple audiences. Determining how best to balance the requirements of these audiences proved critical for a successful ISR plan.

Moving from the most to least time sensitive requirements, Boyle identified the strike packages of aircraft flying missions over Serbia as the first consumers of intelligence in an air campaign. These strike packages included strike aircraft as well as supporting aircraft providing protection from surface-to-air missiles and

²⁸ Headquarters US Air Forces in Europe (USAFE), *History of USAFE 1998-1999: Volume 1: Narrative (U)*, (Ramstein AFB, Germany: USAFE History Office, 2003), 368, 388. (SECRET) Information extracted is unclassified.

²⁹ Air Force Doctrine Document (AFDD) 2, *Organization and Employment of Aerospace Power*, 28 September 1998, 49.

enemy fighters. For the airmen flying these missions, intelligence updates were the most time sensitive and related to updates in threat locations or changes to targeting information.³⁰ This type of time-critical link between intelligence and ongoing flying operations was addressed by the flex targeting system developed during the war.³¹ Shortening timelines for intelligence dissemination proved even more important as the Serbians deliberately chose a strategy of dispersing ground forces and minimizing surface-to-air engagements in order to increase survival of their ground forces and missile systems.

In addition to collecting this intelligence, having a communications means to rapidly disseminate the intelligence was also crucial. In Allied Force, the means of communication from the CAOC to strike aircraft typically took the form of radio relay through airborne command and control aircraft such as the E-3 AWACS, EC-130 ABCCC, or E-8 JSTARS. For the F-15E Strike Eagle, a unique capability was employed to send target imagery directly to the aircraft from a special ground station in Italy. The fighter crews could then use this imagery to guide a precision weapon such as the AGM-130 to the designated target.³² While disseminating timely intelligence to the airborne strike missions was the most time-critical task for intelligence, it also proved to be the most difficult.

After the strike package was in the air, the next customers on the intelligence timeline were the combat flying wings. The US Air Force contribution at the start of the war included three flying wings based in Italy and the United Kingdom. As US commitment

³⁰ Boyle, interview.

³¹ Lt Col Michael W. Kometer, *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower* (Maxwell AFB, AL: Air University Press, 2007), 193.

³² Kometer, *Command in Air War*, 193-194.

escalated over the course of the war, this presence increased to ten air expeditionary wings spread across the continent of Europe.³³ These units, after receiving their mission tasking from the CAOC, were responsible for the tactical planning for executing the next wave of air strikes against Serbia. Like the missions currently in the air, the wing planning staffs needed to be advised of any threat updates and changes to targeting information. The timeline for intelligence to reach these units was slightly less compressed and communication methods less complicated as these units were still on the ground in their mission-planning phase.³⁴ Unfortunately, in the case of dynamic targeting situations, most specific information about the location of mobile targets provided during mission planning will likely be outdated by the time these aircraft actually enter their mission areas.³⁵ Nonetheless, the wings remained a major consumer of air intelligence.

At the next level of intelligence consumers, CAOC planners bridged the gap between the tactical and operational levels of the air campaign. These air planners were responsible for developing the next days' wave of strike packages based on strategic guidance from the CFACC.³⁶ In a doctrinal AOC, the combat plans division would have played this role.³⁷ In the case of the NATO CAOC at Vicenza, this planning effort was led by Colonel Peck who deployed from his position as 32 AOG commander to become General

³³ Headquarters USAF, *AWOS Initial Report*, 30-31.

³⁴ Boyle, interview.

³⁵ Col Christopher E. Haave and Lt Col Phil M. Haun, *A-10s over Kosovo: The Victory of Airpower over a Fielded Army as Told by the Airmen Who Fought in Operation Allied Force* (Maxwell AFB, AL: Air University Press, 2003), 138.

³⁶ Peck, interview.

³⁷ AFDD 2, 71.

Short's lead air planner.³⁸ This planning staff was required to continuously translate commander's intent into an actionable plan as the campaign developed within the strategic constraints imposed from higher echelons. From an intelligence perspective, these planners required updates on the enemy order of battle and target development to continue to develop the air plan.

The theater and component commanders comprised Boyle's final level of intelligence consumers. This included General Short, who as the CFACC required assessments of how the ongoing air campaign was affecting the target system. These assessments would provide critical feedback into updating the air strategy. General Clark, the overall theater commander, also emerged in this level of intelligence consumers as he managed strategic coordination with the various NATO nations. Boyle's time-based approach was not intended to suggest these commanders' strategic function was less important than the tactical flyers, but the timeline for their decisions were typically longer.³⁹ For example, the CAOC's operational battle rhythm was based on the 72-hour air tasking order cycle. Conversely, a combat wing may be launching a strike package within a few hours, or a strike aircraft in the air may be entering a new threat envelope within minutes. Addressing these layered time requirements was a central feature in Boyle's thinking as he approached how to provide intelligence to the air campaign.

The second major feature of Boyle's approach to building an ISR plan to support the air campaign focused on integrating airborne and space-based collection capabilities. When integrating most space-based platforms into operational plans, orbital

³⁸ In the NATO staff construct, the planning function was designated as the C5. See Kometer, *Command in Air War*, 161.

³⁹ Boyle, interview.

mechanics become a major limiting factor. When launched, satellites are placed in a particular orbit based on the mission of the satellite. Maneuvering a satellite to change its orbit is a major action based on the limited amount of fuel onboard.⁴⁰ As a result of these rigid orbits, satellites can be considerably less maneuverable than airborne assets in responding to dynamic requirements. Based on this premise, Boyle instructed his collection management team to first look at the imagery opportunities available from space-based collection sensors. After determining what could be supported from space, the collection management team would then task airborne assets for requirements not optimized for satellite collection. By deliberately integrating national-level ISR from the beginning of the plan, the collection managers at the CAOC were able to achieve synergy between all available collection sources.⁴¹

The ISR team for Allied Force started with an integrated plan to support air operations. This plan rested on recognizing the major consumers of intelligence during the campaign and the relative time horizons for intelligence to be useful. The intelligence plan also leveraged the integration of national and theater assets from the earliest stages of planning. Boyle's plan hinged on the intimate integration of intelligence and operations. Understanding the operations tempo and information requirements for an ongoing air campaign underpinned the intelligence system supporting the war.

⁴⁰ AU-18 *Space Primer* (Maxwell AFB, AL: Air University Press, 2009), 109.

⁴¹ Boyle, interview.

The CAOC Goes to War:

Linking Operations and Intelligence for the Air Campaign

The Combined Air Operations Center (CAOC) was the central hub for managing the integration of intelligence and operations during Allied Force. By the late 1990s, the Air Operation Center (AOC) came to play a major role in US Air Force doctrine for the operational-level employment of air power. Based on his experience as the CFACC during Deliberate Force, General Michael Ryan believed the AOC was the most effective means for commanding an air campaign.⁴² In the forward to the updated Air Force Doctrine Document 2 published in September 1998, Ryan, who had risen to become Air Force Chief of Staff, emphasized “the use of air operations centers (AOCs) as the ‘nerve centers’ behind all aerospace operations.”⁴³ During a war of coercion against Serbia, the CAOC would play a central role in assessing the implementation of a coercive air strategy. Furthermore, the communications capability and staff functions made the CAOC a critical node for processing intelligence information for the various consumers previously discussed.

The NATO CAOC in Vicenza, Italy served as General Short’s operational-level headquarters to direct air operations in the Balkans. On May 10, 1998, General Short took command of USAFE’s Sixteenth Air Force and simultaneously became Commander, Allied Air Forces Southern Europe for NATO.⁴⁴ When General Clark activated Joint Task Force Noble Anvil in January 1999 to serve as the US operational component of a potential war with Serbia, Short also became the Joint Forces Air Component

⁴² Kometer, *Command in Air War*, 100.

⁴³ AFDD-2, i.

⁴⁴ Headquarters USAFE, *History of USAFE 1998-1999*, 366.

Commander (JFACC) for this new organization.⁴⁵ General Short would execute these responsibilities from the CAOC, but as combat began his headquarters lacked the appropriate personnel and organization for a sustained air war. In March 1999, the CAOC was only manned for small-scale residual operations in Bosnia.⁴⁶ While the ranks of the CAOC would eventually swell from 401 to 1,417 personnel during Allied Force, the staff was initially not manned or equipped to execute major combat operations.⁴⁷

A sustained coercive air campaign required the ability to develop strategy and conduct assessments, which were initially absent at Vicenza. Unlike a doctrinal US Air Force AOC, the NATO CAOC lacked a dedicated strategy division.⁴⁸ The strategy division within a USAF AOC at the time was charged with developing and assessing the long-term air strategy at the direction of the JFACC.⁴⁹ Assessment was a key portion of the strategy development process. In the adversarial nature of strategy, the commander must understand the effect his actions are having on an enemy in order to make satisfactory adjustments to meet campaign objectives. These adjustments to strategy would then necessarily inform updates to planning and execution. The assumption of a short war led to an initial lack of emphasis on long-term strategy and assessment, and the air component entered the first phase of the war without a coherent air campaign plan.⁵⁰ In the case of the CAOC, assessments were initially conducted via reach-back until April 17 when a small team of analysts from

⁴⁵ Department of Defense, *Kosovo After-Action Report*, 19-20.

⁴⁶ Headquarters USAFE, *History of USAFE 1998-1999*, 164.

⁴⁷ Headquarters USAFE, *History of USAFE 1998-1999*, 164.

⁴⁸ Kometer, *Command in Air War*, 161.

⁴⁹ AFDD 2, 70.

⁵⁰ Headquarters USAFE, *History of USAFE 1998-1999*, 163-164.

Ramstein deployed to the CAOC to support planning efforts.⁵¹ Furthermore, it was early May before a strategy cell was established within the CAOC.⁵² With these elements in place, the CAOC increased its capability to manage the air war more coherently.

The CAOC also played a central role in managing theater intelligence requirements. As outlined in contemporary US Air Force doctrine, one of the primary roles of an AOC was to “plan, task, and execute the theater ISR mission.”⁵³ A pivotal turning point from an intelligence perspective occurred on the fourth night of operations, when Serbian air defenses successfully shot down an F-117 stealth fighter northwest of Belgrade. While the pilot was successfully rescued, the loss of what had been publically perceived as an invincible asset was a major blow to the allied effort. While the Air Force did not officially acknowledge the details of the incident, author Benjamin Lambeth suggests a lack of intelligence information regarding the location of mobile surface-to-air missiles likely contributed to the shoot down.⁵⁴ The following day, General Jumper flew from Ramstein to Vicenza to assess the situation at the CAOC and receive a personal update from General Short. Colonel Boyle travelled with Jumper expecting a quick overnight trip. Rather than a one-day trip, however, Jumper ordered Boyle to stay on as Short’s director of intelligence, a position he would hold for the duration of the conflict. From this position, Boyle was able to bring in a team from Ramstein to begin

⁵¹ Kometer, *Command in Air War*, 161.

⁵² Headquarters USAFE, *History of USAFE 1998-1999*, 191.

⁵³ AFDD 2, 64.

⁵⁴ Benjamin S. Lambeth, *NATO’s Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 116-117.

building the intelligence processes for the prosecution of the air war.⁵⁵

Based on doctrine, the AOC served as the hub of integration for operations and intelligence for an air campaign. As the air war for Kosovo began, the CAOC at Vicenza emerged as the hub for operational-level command and control, but it was initially underprepared for the task. After the opening days of the conflict, the need for deeper strategy, assessment, and intelligence functions became clear. The personnel to implement these processes gradually deployed as the air war unfolded. As the war progressed, flex targeting would emerge as one of these key processes.

Conclusion

As the war with Serbia approached, the airmen of USAFE attempted to prepare for a coercive air campaign. From the earliest stages of planning, operations planners and intelligence analysts worked together to craft an air campaign based on the objective of coercing Slobodan Milosevic into compliance with international demands. The expectations of American airmen for how this war would be fought were largely based on the precepts developed during the previous decade. The US Air Force preferred to use an overwhelming application of force based on the model of Desert Storm. The political constraints of the situation, however, dictated a much more limited and gradual approach to the ensuing conflict.

As planning gave way to operations, the NATO CAOC in Vicenza took center stage. The CAOC served as the operational headquarters for the air war but was prepared for only a limited

⁵⁵ Boyle, interview.

engagement of a few nights of air strikes. While initially unprepared, the CAOC would grow in personnel and processes to prosecute the growing conflict. As the Serbians demonstrated their ability for adapting to the situation, these processes included the integration of real-time intelligence to enable dynamic targeting.



Chapter 5

Dynamic Targeting and the Air Campaign for Kosovo

Many intelligence reports in war are contradictory; even more are false, and most are uncertain...[t]he difficulty of accurate recognition constitutes one of the most serious sources of friction in war.

Carl von Clausewitz
On War

In order to achieve precision engagement, precision intelligence is required. During Operation Allied Force, our precision-intelligence capability played a significant role in the employment of precision munitions to systematically degrade important Serbian military targets.

Department of Defense
Kosovo After Action Report

On March 18, 1999 the diplomatic conference underway in Rambouillet, France broke down when the Serbian delegation representing Slobodan Milosevic refused to sign the proposed peace agreement.¹ Two days later, the final observers of the Kosovo Verification Mission, in place to oversee compliance with an October 1998 ceasefire agreement, left Serbia. With the observers gone, Serbian security forces renewed their offensive against the Kosovo Liberation Army (KLA) and intensified their ethnic cleansing campaign against Kosovo's Albanian population. Following an initiation order from Secretary General Javier Solana, NATO air operations began on March 24, 1999 with initial strikes from B-2 and B-52 bombers against Serbian air defense and

¹ Ivo N. Daadler and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington D.C.: Brookings Institution Press, 2000), 84.

military command targets.² This marked the beginning of a 78-day air war and the first major military campaign in NATO's 50-year history.

As the war unfolded, finding and destroying mobile targets emerged as a serious operational issue. Eventually, dynamic targets would account for over 30% of the approximately 11,000 NATO airstrikes during the war.³ The US Air Forces in Europe (USAFE) official history of the war highlighted mobile targets "as perhaps the toughest problem to solve for NATO intelligence during Allied Force."⁴ The Serbian military, in the form of both air defenses and ground forces, were determined to make the process of dynamically targeting fielded forces as difficult as possible in an effort to survive. In response to emerging strategic and operational necessities, NATO airmen developed dynamic targeting processes to intentionally link intelligence and operations in support of the air campaign.

During a video teleconference the morning after the first night of the air war, Admiral James Ellis, the overall Joint Task Force commander for the operation, noted the movement by Serbian air defense forces and their lack of emissions to allow target engagement, but it remained to be seen whether this was a deliberate tactic or just the result of normal combat friction.⁵ As it turned out, adaptation by the enemy challenged the assumptions of how precision attack would work in a real combat environment. A new type of war not based on a force-

² Headquarters US Air Force (USAF), *The Air War Over Serbia (AWOS): Aerospace Power in Operation Allied Force Initial Report*, (Washington, D.C.: Department of the Air Force, April 2000), 15.

³ Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report* (Washington, D.C.: Department of Defense, January 2000), 87.

⁴ Headquarters US Air Forces in Europe (USAFE), *History of USAFE 1998-1999: Volume 1: Narrative* (U), (Ramstein AFB, Germany: USAFE History Office, 2003), 248. (SECRET) Information extracted is unclassified.

⁵ Wesley K. Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Conflict* (New York: Public Affairs, 2002), 197.

on-force battle pushed NATO airmen to improvise new methods for dynamic targeting. The two major types of dynamic targeting in Allied Force were strikes aimed at the Serbian integrated air defense system (IADS) and those aimed at the military ground forces deployed to Kosovo. Both target sets presented challenges the US-led air component was not optimized to fight. While only two allied aircraft were lost and no airmen were killed in action, the Serbian IADS continued to pose a potential threat throughout the course of the campaign. As for the Serbian ground forces, the air campaign in Kosovo only began gaining traction in the last stages of the war. These experiences would serve to reinforce the difficulties of conducting an effective air campaign based on dynamic targeting.

Dynamic Targeting Against the IADS

The importance of gaining and maintaining air superiority has been a foundational premise of air operations since the days of the earliest air power theorists. Gaining command of the air gained a new dimension as many nations began to invest in surface-to-air missile systems to defend their airspace from offensive air operations. While the Serbian integrated air defense system (IADS) did not possess the most state of the art equipment, the numbers of mobile surface-to-air missiles (SAM) in its inventory still presented a major challenge to NATO airmen. In addition to mass, the Serbian air defenders employed unorthodox tactics increasing the difficulty for Allied operations. The response of Allied airmen was to use traditional suppression of enemy air defense (SEAD) tactics along with a new process of flex targeting to dynamically locate and destroy mobile radars and missiles. The fight against the Serbian IADS was informed by previous experience but had to take into account unique aspects imposed by a new enemy.

From a weapons system perspective, the Serbians possessed a robust IADS comprised of both combat aircraft and surface to air missile

systems, although it lacked the most modern Soviet equipment. The Yugoslavian Air Force inventory included over 100 fighter intercept aircraft. These were mostly older MiG-21 aircraft but also included sixteen more modern MiG-29 fighters.⁶ Operating from known airbases, the fighters were an easily manageable threat for Allied flyers, and after the first few days of the war, allied airmen had effectively eliminated Serbia's offensive air capability.⁷ Although the threat from the air was quickly reduced, ground-based air defense forces remained a problem.

The pervasive SAM and anti-aircraft artillery (AAA) presence throughout the country presented a credible threat to NATO operations as the war began. The mainstays of Milosevic's air defense force were Soviet-built SA-3 and SA-6 radar-guided surface-to-air missile (SAM) systems. At the beginning of the war, the Serbs possessed 25 SA-6 Straight Flush target engagement radars along with their associated missile launch vehicles.⁸ The SA-6 was designed to travel along with offensive ground forces, making it highly rugged and mobile.⁹ The Serbs also employed 16 SA-3 missile systems.¹⁰ Although the Soviets originally designed these weapons for static defense, the Serbians had modified them to increase their mobility as well.¹¹ Along with these radar-guided SAMs, the Serbs also utilized hundreds of AAA pieces and thousands of infrared-guided shoulder-fired missile systems.¹² While more numerous, these weapons were limited in range and altitude. This led General Short to establish a 15,000-foot minimum altitude restriction for offensive air

⁶ Headquarters USAF, *AWOS Initial Report*, 11.

⁷ Department of Defense, *Kosovo After-Action Report*, 64-65.

⁸ Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 102.

⁹ Lt Col James R. Brungess, *Setting the Context: Suppression of Enemy Air Defenses and Joint War Fighting in an Uncertain World* (Maxwell AFB, AL: Air University Press, 1994), 21.

¹⁰ Headquarters USAF, *AWOS Initial Report*, 11.

¹¹ Col Ed Boyle, interview by the author, 28 February 2017.

¹² Headquarters USAF, *AWOS Initial Report*, 11.

operations to negate the threat to NATO aircraft.¹³ Short subsequently loosened these restrictions to improve targeting accuracy later in the conflict, but airmen still had to be wary of potentially deadly surface-to-air fire.¹⁴ Unfortunately, overflying was not an option for the higher altitude radar-guided SAMs, and the Serbian operators made countering these systems incredibly challenging.

The most demanding aspect of the counter-IADS campaign was not the weapons themselves but the nature in which the Serbian air defense forces tactically employed them. Traditional US tactics for the Suppression of Enemy Air Defenses (SEAD) involved employing anti-radiation missiles against enemy SAM radars. These missiles, often cued by electronic sensors onboard the aircraft, are able to detect and guide onto the electromagnetic radiation of the opposing radar.¹⁵ The use of anti-radiation missiles, along with radar jamming platforms and precision strikes against known air defense facilities made up the backbone of a counter-IADS campaign. Using this method, General Short expected to eliminate the Serbian air defense threat in the first few days of the war with a minimal loss of Allied aircraft.¹⁶

This traditional approach, however, was predicated on the enemy actively contesting command of their airspace requiring the regular use of their radars, which the Serbs did not oblige. Rather than attempting to deny Allied air superiority, the Serbian air defenders conserved their forces by limiting radar emissions, moving frequently, and at times launching missiles without radar guidance.¹⁷ The minimization of radar

¹³ John A. Tirpak, "Short's View of the Air Campaign," *Air Force Magazine*, September 1999, 43-44.

¹⁴ Department of Defense, *Kosovo After-Action Report*, 66.

¹⁵ Headquarters USAFE, *History of USAFE 1998-1999*, 176.

¹⁶ Lt Gen Michael Short, interview, *Frontline*, PBS, <http://www.pbs.org/wgbh/pages/frontline/shows/kosovo/interviews/short.html>, accessed 3 May 2017.

¹⁷ Headquarters USAF, *AWOS Initial Report*, 17.

emissions made detection and location of SAMs incredibly difficult.¹⁸ The SAMs continued to survive, and by the end of the campaign, NATO aircrew had experienced three times the average missile launch rate encountered during Desert Storm.¹⁹ By engaging in this cat and mouse game, the Serbs ceded command of the air to the Allies, but in turn they compelled General Short to commit extensive levels of SEAD support to his strike packages throughout the air campaign.²⁰

The nature of the tactical employment of Serbian air defense forces nested well with Milosevic's apparent strategy of riding out the airstrikes and waiting for NATO resolve to weaken. In the lead up to the war, many alliance members had displayed a reluctance to commit decisive military force, especially with the lack of a specific United Nations (UN) mandate.²¹ Furthermore, the Clinton administration had begun to set a precedent of using punitive air strikes in a limited and largely ineffectual manner. Specifically, Operation Desert Fox in December 1998 launched a four-day round of air strikes against Saddam Hussein's regime in Iraq as punishment for expelling UN weapons inspectors.²² This event, along with cruise missile strikes against Osama Bin Laden in response to the African embassy bombings in August 1998, likely signaled to Belgrade a lack of resolve for a sustained NATO military campaign.²³ In fact, it was primarily Milosevic's own strategic blunder of escalating the ethnic cleansing campaign that ultimately solidified NATO resolve to continue

¹⁸ Lt Col Michael W. Kometer, *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower* (Maxwell AFB, AL: Air University Press, 2007), 128.

¹⁹ Department of Defense, *Kosovo After-Action Report*, xxiii.

²⁰ Headquarters USAF, *AWOS Initial Report*, 17.

²¹ Daadler and O'Hanlon, *Winning Ugly*, 43-44.

²² Dag Henriksen, *NATO's Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis 1998-1999* (Annapolis, MD: Naval Institute Press, 2007), 159.

²³ Daadler and O'Hanlon, *Winning Ugly*, 2-3.

the war.²⁴ As the enemy adjusted to the demands of combat, the airmen at the CAOC also began to adapt.

In response to the problem of engaging mobile targets, Short stood up what became known as the Flex Targeting Cell in an attempt to fuse multiple sources and disseminate actionable intelligence to NATO forces. Established at the CAOC in April 1999, the Flex Targeting Cell included an IADS targeting team under the direction of Colonel Boyle whose mission was to fuse intelligence from multiple sources to locate and ultimately destroy elusive IADS targets.²⁵ Prior to the conflict, Boyle had designated two civilian analysts at Ramstein to begin getting in the heads of the Serbian SAM operators. These analysts were assigned to track and assess the dispersion of SA-3 and SA-6 systems. The detailed knowledge of these analysts would continue to feed the intelligence effort to maintain an accurate order of battle as the war progressed.²⁶ At the CAOC, the IADS team consisted of a secret fusion center using inputs from signals intelligence to cross-cue to imagery platforms such as the U-2 and MQ-1. Intelligence reach-back support at the U-2's Distributed Ground Station in Beale AFB, California analyzed the imagery for potential targets.²⁷ After this information was fused into actionable intelligence, the CAOC relayed the targets to strike aircraft for action. While almost nonexistent at the beginning of the war, resourceful airmen were now able to build a workable system for engaging fleeting air defense targets.

By the end of the war, USAFE intelligence sources assessed the Serbian air defense forces had been reduced to 15 operational SA-6s. Likewise, the Serbs were reduced to a single operational SA-3, although

²⁴ Daadler and O'Hanlon, *Winning Ugly*, 19.

²⁵ Kometer, *Command in Air War*, 128.

²⁶ Boyle, interview.

²⁷ Kometer, *Command in Air War*, 163.

additional systems were reconstituted post-war.²⁸ One notable success by the IADS team involved the rapid re-tasking of a U-2 to investigate a suspected SA-6 location. The distributed intelligence analysts at Beale AFB were able to evaluate the U-2 imagery and disseminate target data to an F-15E fighter for engagement with a precision weapon.²⁹ While a few notable success stories like this one emerged, typically airmen faced more extended timelines making it difficult to complete the targeting cycle against fleeting targets.³⁰ Both the US Air Force and Department of Defense post-war assessments stressed the need to further integrate ISR into operations in a seamless manner.³¹ However, the integration of intelligence into air operations had improved since the Gulf War, even if it fell short of its full potential.³²

The Serbian air defenses presented a challenging problem for NATO airmen. Rather than vigorously defending their airspace, the Serbs chose to conserve their limited resources and focus on engaging targets of opportunity to chip away at NATO resolve. The NATO airmen met this challenge with a combination of traditional suppression methods, as well as the development of intelligence-operations integration to destroy enemy missile and radar systems. In the end, only two NATO aircraft were lost to enemy fire with both pilots safely recovered.³³ While the system of flex targeting was by no means perfect, it provided a glimpse of future possibilities for real-time ISR support to countering enemy air defenses.

²⁸ Headquarters USAF, *The Air War Over Serbia (AWOS): Aerospace Power in Operation Allied Force Volume 1 Decisive Aerospace Operations* (U) (Washington D.C.: Department of the Air Force, October 2000), 196. (SECRET/NOFORN) Information extracted is unclassified.

²⁹ Lambeth, *NATO's Air War for Kosovo*, 159-160

³⁰ Kometer, *Command in Air War*, 194.

³¹ Headquarters USAF, *AWOS: Decisive Aerospace Operations*, 409; Department of Defense, *Kosovo After-Action Report*, 131-132.

³² Lambeth, *NATO's Air War for Kosovo*, 161

³³ Lambeth, *NATO's Air War for Kosovo*, 108.

Dynamic Targeting in the KEZ

In addition to the fight against the air defenses, NATO airmen faced the equally daunting challenge of finding and destroying Serbian ground forces responsible for the ongoing ethnic cleansing campaign in Kosovo. The destruction of these forces became a strategic priority for General Clark. These ground forces presented a challenging target to engage from the air without an accompanying friendly land component. Again, airmen developed processes to feed intelligence to attack aircraft with varying degrees of success. Ultimately, it is unknowable how much the air campaign against his army in Kosovo affected Milosevic's decision to give in to NATO demands.

The Serbian military in Kosovo consisted of an amalgamation of military and paramilitary forces. The main Serbian unit in Kosovo was the Yugoslav 3rd Army headquartered in the city of Nis in southeast Serbia, approximately 50 miles from the Kosovo border. While this was a conventional unit of the regular Yugoslav Army (VJ), it also exercised control over the Ministry of Interior Police (MUP) and local paramilitary forces. The VJ troops were the best equipped of these forces with tanks, armored vehicles, and artillery, while MUP forces provided local knowledge of the terrain and population. The local paramilitary groups were known to be the most fanatical and the main instrument of the ethnic cleansing campaign.³⁴ While these forces lacked the most modern equipment, they would prove an elusive target for NATO airmen.

The mission of interdicting Serb troops in Kosovo emerged unexpectedly based on the strategic direction of General Clark. Unlike suppressing air defenses, which was a detailed part of pre-war planning with the expected requirement of gaining air superiority, the dynamic targeting of fielded military forces in Kosovo was not something the air

³⁴ Headquarters USAF, *AWOS Initial Report*, 11.

component was initially prepared to accomplish.³⁵ Pre-war air planning had called for attacks against only fixed military targets and air defenses to coerce Milosevic. As the campaign began, however, Clark believed it was a “moral and legal imperative” to counter the ground forces conducting the ethnic cleansing campaign.³⁶ After three weeks of operations, Clark directed the attrition of Serb ground forces in Kosovo as a top priority.³⁷ Conversely, General Short never viewed Milosevic’s 3rd Army in Kosovo as a center of gravity.³⁸ In his opinion, Milosevic would only be coerced through a concerted air effort against strategic targets in the vicinity of Belgrade.³⁹ Despite disagreements over the relative merits of ground forces versus strategic targets, Short convinced Clark both approaches could be accomplished simultaneously with the air forces available.⁴⁰ In this manner, air power proved its versatility in conducting parallel efforts against the enemy across a wide geographic battle area.

The fight against the Serb ground forces was also heavily influenced by constraints imposed on the air campaign. In addition to the focus on halting Serb forces, the political situation also dictated the importance of minimizing civilian casualties. As NATO operations in Kosovo escalated, concern for civilian casualties drove increased oversight from the CAOC in the strike process.⁴¹ In addition to safeguarding civilian lives, Clark and Short also put a premium on minimizing risk to NATO aircrew, knowing that a high level of losses would be exploited by Milosevic to drive a wedge in the political resolve of

³⁵ Kometer, *Command in Air War*, 192.

³⁶ Clark, *Waging Modern War*, 183.

³⁷ Lambeth, *NATO’s Air War for Kosovo*, 121.

³⁸ Tirpak, “Short’s View of the Air Campaign,” 43.

³⁹ Short, interview, *Frontline*.

⁴⁰ Tirpak, “Short’s View of the Air Campaign,” 44.

⁴¹ Kometer, *Command in Air War*, 194.

NATO.⁴² This led Short to establish a minimum altitude of 15,000 feet for combat missions in order to mitigate the AAA and man-portable missile threat.⁴³ These two objectives were sometimes at odds when flying higher led to a decreased ability for pilots to distinguish between military and civilian activity. Eventually, the 15,000 feet restriction was eased to accommodate improved target identification.⁴⁴ The dual requirement to protect civilian lives as well as safeguard NATO personnel was an ever-present factor for the airmen.

Enemy tactics and the lack of a NATO ground element complicated the task of engaging Serb forces in Kosovo. As General Jumper later acknowledged, NATO observed large formations of troops and armor entering Kosovo in March 1999 under the cover of the Rambouillet peace talks.⁴⁵ Once these forces dispersed into Kosovo without the threat of a potential NATO ground invasion, Serb commanders were never compelled to establish defensive positions or mass into large formations.⁴⁶ The principles of traditional maneuver warfare would dictate the use of fixing and flanking forces, whereby one force is used to draw out and fix the enemy in position while a second complementary force is committed to attack the enemy's flank.⁴⁷ With the lack of a credible NATO ground threat, the VJ and MUP forces in Kosovo could not be fixed. Therefore, in the absence of a fixing force, the flanking force of NATO's air component had little to exploit. Rather than take to the field, the Serbians hid among the population or under camouflage.⁴⁸ They were free to conduct terror raids into villages with small units limiting their

⁴² Clark, *Waging Modern War*, 183.

⁴³ Tirpak, "Short's View of the Air Campaign," 43-44.

⁴⁴ Daadler and O'Hanlon, *Winning Ugly*, 123.

⁴⁵ Lambeth, *NATO's Air War for Kosovo*, 121.

⁴⁶ Lambeth, *NATO's Air War for Kosovo*, 120.

⁴⁷ Marine Corps Doctrinal Publication (MCDP) 1-0, *Marine Corps Operations*, 9 August 2011, 3-29.

⁴⁸ Kometer, *Command in Air War*, 129.

exposure to air attack.⁴⁹ The rugged terrain of forested hills and mountains in southern Serbia and Kosovo further aided the Serbs in eluding NATO air strikes.⁵⁰ In this environment, target acquisition became an increasingly frustrating proposition.

Allied airmen again improvised a solution to maximize their effectiveness against General Clark's top priority. On April 14, air planners at the CAOC established the Kosovo Engagement Zone (KEZ). The KEZ was similar to the Kill Box system employed during Desert Storm allowing designated forward air control aircraft to manage the engagement of enemy forces without the aid of friendly ground troops.⁵¹ The CAOC assigned two E-8 JSTARS ground surveillance aircraft to gather near-real-time intelligence on enemy positions in the KEZ.⁵² Unfortunately, the mountainous terrain presented difficulties for tracking vehicles moving through terrain, and the JSTARS radar sensor lacked an identification capability.⁵³ Despite these limitations, the JSTARS crews were able to establish a productive battle rhythm with strike aircraft. For example, A-10 pilots operating in the KEZ would pull specific data from the JSTARS when required rather than react to unsolicited information, which often proved to be civilian activity.⁵⁴ Eventually, the CAOC planners started pairing JSTARS and the MQ-1 Predator together for cross-cue opportunities. These assets complemented each other well with the JSTARS wide area surveillance capability and the Predator's ability to positively identify targets with its electro-optical camera. The Predator's slow speed, however, limited the number of potential targets it

⁴⁹ Lambeth, *NATO's Air War for Kosovo*, 120.

⁵⁰ Headquarters USAF, *AWOS Initial Report*, 12.

⁵¹ Kometer, *Command in Air War*, 128-129, 223.

⁵² Lambeth, *NATO's Air War for Kosovo*, 121.

⁵³ Kometer, *Command in Air War*, 224.

⁵⁴ Col Chistopher E. Haave and Lt Col Phil M. Haun, *A-10s Over Kosovo: The Victory of Airpower over a Fielded Army as Told by the Airmen Who Fought in Operation Allied Force* (Maxwell AFB, AL: Air University Press, 2003), 138.

could investigate.⁵⁵ These tactical solutions characterized the innovation of NATO airmen as they continued their frustrating battle against Serbian ground forces.

Within the CAOC, the Flex Targeting Cell also included a fielded forces team to assist in locating mobile targets.⁵⁶ The majority of actual Flex Target strikes were conducted by specifically-tasked aircraft on ground or airborne alert or by aircraft operating in pre-designated kill boxes in the KEZ under the direction of a Forward Air Controller (Airborne) or FAC(A). Occasionally, aircraft were also diverted from pre-planned tasking to strike time sensitive targets.⁵⁷ A-10 attack aircraft were primarily tasked with daytime strike missions while Air Force F-16s and Navy F-14s flew at night due to their enhanced capabilities such as night vision goggles and targeting pods.⁵⁸ While targets were often acquired visually by a FAC(A) flying in the KEZ, the fielded forces team did have opportunities to push valuable information to the strikers. Often, due to a lack of intelligence and situational awareness data, the Fielded Forces Team became a mechanism for ensuring ROEs were met rather than a force enhancer for the strikers.⁵⁹

According to post-war accounts, the A-10 pilots prosecuting daytime strikes against the Serb ground forces experienced varying levels of success with the CAOC Flex Targeting process. Colonel Christopher Haave, a wartime A-10 squadron commander, recalls most mission tasking starting with a daily list of potential targets from the CAOC. Unfortunately, this information was typically 12 to 24 hours old rendering it of little value.⁶⁰ The A-10 flyers received a more lucrative source of intelligence once they were airborne, as the Flex Targeting Cell

⁵⁵ Kometer, *Command in Air War*, 224.

⁵⁶ Kometer, *Command in Air War*, 194.

⁵⁷ Lambeth, *NATO's Air War for Kosovo*, 122.

⁵⁸ Kometer, *Command in Air War*, 224.

⁵⁹ Kometer, *Command in Air War*, 194-195.

⁶⁰ Haave and Haun, *A-10s over Kosovo*, 138.

would pass more recent targeting information fused from a variety of sources including signals intelligence and Task Force Hawk's counter-battery radars. Once this data was correlated by the fielded forces team, the CAOC would relay the information to the on-call FAC(A), usually through an EC-130E, Airborne Battlefield Command and Control Center (ABCCC) aircraft.⁶¹ In other cases, the Flex Targeting Cell would relay precise target information collected via the MQ-1 Predator loitering overhead.⁶² While these interactions did not account for the majority of interdiction missions, they proved the value of enhanced intelligence-operations integration.

In addition to the airborne ISR sensors directed by the CAOC, US Army intelligence units deployed to the Albanian-Kosovo border also became a valuable member of the joint ISR team. The US Army presence organized as Task Force Hawk under the command of Lieutenant General John Hendrix deployed to an airfield in Tirana, Albania in April 1999.⁶³ The mission of Task Force Hawk was originally designed around the employment of AH-64 Apache attack helicopters against Serb ground forces in Kosovo. While these attack missions were eventually deemed too high risk for execution, the organic intelligence-gathering capabilities assigned to the task force began to feed into the dynamic targeting processes of the air war. The artillery units supporting Task Force Hawk deployed to Albania with AN/TPQ-36 and AN/TPQ-37 counter-battery radars designed to determine the point of origin of enemy artillery shells.⁶⁴ Additionally, EH-60 and RC-12 electronic reconnaissance

⁶¹ Haave and Haun, *A-10s over Kosovo*, 141.

⁶² Haave and Haun, *A-10s over Kosovo*, 245-248.

⁶³ Robert M. Gregory, *Clean Bombs and Dirty Wars: Air Power in Kosovo and Libya* (Lincoln, NE: Potomac Books, 2015), 88-90.

⁶⁴ "Thales Raytheon Systems Upgrades AN/TPQ-36 and AN/TPQ-37 Firefinder Radar to Extend Service and Reduce Life Cycle Costs," Thales Raytheon Systems, 10 January 2006, <http://www.thalesraytheon.com/newsroom/news/detail-news/article/thalesraytheonssystem-36.html>.

aircraft also deployed and flew missions along the Kosovo border. These aircraft were able to use onboard sensors to identify and locate Serbian command posts in Kosovo.⁶⁵ After realizing the Apaches would not be employed in combat, the intelligence chief for the task force began passing his unit's targeting information to the CAOC for action.⁶⁶ The CAOC was able to integrate this additional intelligence source into the dynamic targeting process.

The most successful period for NATO aerial interdiction came late in the war as the KLA stepped up attacks against Serbian forces. On May 26, 1999 the KLA launched an offensive near Mount Pastrok with support from Albanian artillery.⁶⁷ As the KLA forced the Serbs to mass in order to repel the offensive, Short relaxed the rules of engagement to give FAC(A) and JSTARS crews more autonomy in making strike decisions.⁶⁸ Despite the increase in NATO and KLA activity, the VJ forces managed to repulse the offensive while actively striving to keep their troop concentrations as minimal as possible to decrease vulnerability to airstrikes.⁶⁹ The actual extent of damage to these forces would become a contentious topic after the war.

The NATO experience in Allied Force brought to light the difficulty of engaging a ground force exclusively with air power. Actual combat losses are difficult to assess, as Serbians practiced the technique of clearing damaged equipment from the battlefield.⁷⁰ Three months after the war, NATO's official estimate put the losses of Serbian heavy equipment at twenty percent, but the difficulty of accurate battle damage

⁶⁵ Lambeth, *NATO's Air War for Kosovo*, 157.

⁶⁶ Gregory, *Clean Bombs and Dirty Wars*, 92.

⁶⁷ Robert M. Gregory, *Clean Bombs and Dirty Wars: Air Power in Kosovo and Libya* (Lincoln, NE: Potomac Books, 2015), 93-94.

⁶⁸ Kometer, *Command in Air War*, 196.

⁶⁹ Lambeth, *NATO's Air War for Kosovo*, 55-56.

⁷⁰ Haave and Haun, *A-10s over Kosovo*, 126.

assessment means any number must be taken as a rough estimate.⁷¹ Whatever the number of equipment destroyed, Milosevic and his ground commanders were certainly experiencing increased pressure as the weather continued to improve and NATO's resolve failed to waiver.⁷² Despite the ultimate success of Allied Force, post-war assessments found areas for improvement.

In its official post-war report to Congress, the US Department Of Defense emphasized the requirement for improved intelligence capabilities. The war had demonstrated a need for improvements in rapid retargeting capability in regards to dynamic targeting.⁷³ In addition to additional intelligence collection assets, the US military still needed more streamlined processes to exchange intelligence information and improved capabilities to disseminate sensor data directly to tactical warfighters.⁷⁴ While pre-war developments in the integration of intelligence and operations had paid off, the Air Force still had more ground to cover if it wished to meet the aspirations of achieving a precision attack capability against dynamic targets.

NATO's fight against Serbian ground forces in Kosovo emerged as a central concern of the war as Slobodan Milosevic stepped up the ethnic cleansing campaign against Kosovo's ethnic Albanian population. The strategic nature of this objective, although disputed between Clark and Short, led to a tremendous application of effort by NATO airmen. The lack of a friendly ground component increased the difficulty of their task by allowing enemy troops to remain dispersed and hidden among the terrain and population of Kosovo. Only late in the war was NATO able to mount increased pressure on Serb forces with the confluence of improved weather, KLA offensive action, and improved Air Force-Army

⁷¹ Daadler and O'Hanlon, *Winning Ugly*, 153-154.

⁷² Lambeth, *NATO's Air War for Kosovo*, 134-135.

⁷³ Department of Defense, *Kosovo After-Action Report*, 56.

⁷⁴ Department of Defense, *Kosovo After-Action Report*, 60.

integration. In the end it is still unknown how much this pressure on Serbian ground forces played in Milosevic's decision to concede to NATO demands.

Conclusion

While intelligence integration with air operations improved substantially between the Gulf War and Allied Force, dynamic targeting remained extremely difficult for the Air Force. An especially uncooperative enemy and challenging operating environment in Serbia and Kosovo compounded this difficulty. The flex targeting process was developed to address the major concerns of mobile air defenses and fielded ground forces. These processes had a few demonstrable successes, although on the whole dynamic targeting still remained problematic in execution. A major lesson of the campaign had been the importance of adapting to the enemy's strategic choices and appreciating the limitations of the combat environment.

Chapter 6

Conclusions

Thus it is said that one who knows the enemy and knows himself will not be endangered in a hundred engagements.

Sun Tzu
The Art of War

It is getting the collection of assets out of the collection mentality and getting it into a targeting mentality that gave us this real-time capability that was, I think—ended up being the breakthrough of this campaign.

General John J. Jumper

In the wake of increasing pressure from allied air attacks and Kosovo Liberation Army (KLA) ground action, Slobodan Milosevic conceded to NATO demands on June 9, 1999. The following day Serbian forces began their withdrawal from Kosovo, and NATO halted offensive air operations after 78 days of combat.¹ While multiple compounding factors eventually led to Milosevic's capitulation, the central role of air power cannot be ignored.² As the twentieth anniversary of the Kosovo

¹ Headquarters US Air Force (USAF), *The Air War Over Serbia (AWOS): Aerospace Power in Operation Allied Force Initial Report*, (Washington, D.C.: Department of the Air Force, April 2000), 30-31.

² Multiple explanations have been provided for why Milosevic conceded when he did. Serbia's loss of diplomatic support from the Russian government emerges as one of the most compelling reasons for the timing of Milosevic's decision. However, this does not diminish the central role of air power in isolating Milosevic's regime and demonstrating continued NATO resolve. For further analysis on Milosevic's decision calculus, see: Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001); Ivo N. Daadler and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington D.C.: Brookings Institution Press, 2000); Phil Haun, *Coercion, Survival, and War: Why Weak States Resist the United States* (Stanford, CA: Stanford University Press, 2015); and Daniel Byman and

crisis approaches, the lessons of Allied Force still resonate for today's airmen. Reflection on these events brings to light variables affecting the application of intelligence, surveillance, and reconnaissance (ISR) in aerial warfare. Furthermore, an examination of the war provides lessons for the successful employment of ISR. By appreciating the combination of these potential limiting variables and the best practices of ISR integration, future airmen can benefit from the experiences of their predecessors who operated in the skies over Serbia and Kosovo at the end of the last century.

The Limits of Air Intelligence

The performance of coalition forces during the Gulf War generated high expectations regarding the potential of air power. Even with the Air Force's overwhelming success in Iraq, dynamic targeting and intelligence integration surfaced as problem areas. Despite the high expectations generated during the 1990s, the realities of combat over Yugoslavia highlighted the difficulty of fighting a cunning enemy exclusively from the air. General Fogleman's vision of being able "to find, fix or track, and target anything that moves on the surface of the Earth"³ continued to prove elusive. The challenge faced by ISR airmen during the Serbian air campaign can be further understood by examining a series of variables affecting the successful employment of air power.⁴

The first variable affecting an air campaign and by extension the ability to conduct ISR operations is the nature of the enemy. The Serbs presented a unique mixture of regular and irregular forces challenging

Matthew Waxman, "Kosovo and the Great Air Power Debate," *International Security* 24, 2001.

³ John A. Tirpak, "Find, Fix, Track, Target, Engage, Assess," *Air Force Magazine*, July 2000, 24.

⁴ The following framework is based on Mark Clodfelter's analysis of the US air campaigns against North Vietnam. For more details, see: Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (Lincoln, NE: University of Nebraska Press, 2006), 211-223.

the effectiveness of allied intelligence. They did present some target sets familiar to the traditional air campaign model. For example, the Serbian air forces and to a certain extent the air defense forces were organized and equipped along Soviet doctrinal lines open to exploitation. The Serbians utilized Soviet equipment that had been studied by NATO intelligence for many years. More difficult, and less anticipated by NATO, was the irregular nature of Serbian ground forces executing the ethnic cleansing campaign in Kosovo. These forces represented a much less concentrated and traditional military target set. The irregular nature of these forces was further complicated by the compounding variable of the enemy strategy.

In addition to the nature of the enemy, the nature of the war the enemy chooses to fight also impacts the potential effectiveness of air power. Strategy is adversarial by nature. Therefore the strategy of an air campaign must adjust based on the actions and counteractions of the enemy. Milosevic's overall strategy appeared to be riding out NATO air strikes and waiting for NATO resolve to break down. Milosevic may have also been emboldened by the limited US air demonstrations against Saddam Hussein and Osama Bin Laden in 1998. This overall strategy of riding out the air strikes translated into the operational strategy that challenged allied intelligence in an unexpected way.

At the operational level, the enemy strategy complicated intelligence in the realms of air defenses and ground force employment. Serbian air defenses dispersed to maximize survivability while not actively contesting allied air superiority. This approach was a gamble for Milosevic. After witnessing the impressive display of American air power might in Desert Storm, the Serbs likely assessed the futility of mounting an all-out defense of their air space. Instead, they chose to absorb NATO air strikes while husbanding resources for use against targets of opportunity. These targets of opportunity, such as the high profile shoot down of an F-117 stealth fighter, could potentially be used to drive a

wedge in alliance solidarity and resolve. From an intelligence perspective, the job of tracking and engaging the individual air defense components became more difficult when these forces were not employed along more conventional lines. This drove the requirement for dynamically targeting surface-to-air missiles and other supporting radars.

From a ground force perspective, NATO air intelligence was not prepared to engage an irregular force conducting ethnic cleansing. Milosevic's renewed campaign against the Kosovar Albanians was another gamble that could have potentially forced a *fait accompli* for NATO. If Milosevic completed his program of forced migration, the NATO mission to protect the Kosovar Albanian population would have been effectively negated.⁵ Fortunately for the alliance, Milosevic's strategy backfired, and the ethnic cleansing campaign served to strengthen alliance resolve. Despite this increase in resolve, however, the ethnic cleansing campaign continued to present a significant intelligence challenge. The ISR capabilities fielded during Allied Force were not optimized for tracking small irregular forces operating among civilian populations. The focus of the air campaign in the Kosovo Engagement Zone (KEZ) ultimately became a hunt for Serbian heavy military equipment. This equipment mostly belonged to the Yugoslav 3rd Army, however, and not to the paramilitary forces carrying out much of the terror campaign. When this equipment was located and struck, the lack of an advancing ground force on a traditional battlefield increased the difficulty of intelligence assessment. Overall, the air campaign in the KEZ highlighted the difficulty of both target identification and combat assessment against irregular forces.

The nature of the combat environment also placed limitations on the effectiveness of air power and intelligence, specifically weather and

⁵ Daadler and O'Hanlon, *Winning Ugly*, 112.

terrain. In the words of General Short, the weather “just kicked our butts for the first 45 days.”⁶ While the effects of weather are often discussed in terms of its effect on strike sorties, weather also has significant impact on ISR employment. In addition to the physical ability of an aircraft to fly through inclement weather, ISR planning must also account for the ability of sensors to perform in adverse conditions. Electro-optical imagery sensors, which provide a high degree of fidelity for positively identifying enemy activity, also tend to be the most sensitive to bad weather. Radar sensors can penetrate through weather but have less ability to positively identify specific targets particularly when dealing with irregular forces actively blending into the physical and human terrain. Signals intelligence can help provide positive identification, but the accuracy of its location data tends to be worse than those of an imagery sensor. Balancing the relative strengths and weaknesses of these systems and realistically framing the limitations posed by the environment is a key component to employing ISR forces.

Allied Force also demonstrated how physical terrain can impact the application of ISR. The terrain of Serbia and Kosovo was markedly different from the open deserts of Kuwait and Iraq. The series of wooded hills and valleys challenged the ability for airborne sensors to effectively reconnoiter the battlefield. This challenge was further complicated by the requirement for vulnerable ISR platforms to operate outside of the threat envelopes of enemy air defense systems in the heavily congested airspace over the Adriatic Sea. These line of sight issues were offset to some degree by the high-altitude capability of the U-2 and satellite-based sensors. The remotely operated Predator also provided an additional persistent surveillance capability with a decreased risk to friendly personnel. The lack of direct links between these platforms and strike aircraft, however, presented additional complications. Like weather, the

⁶ John A. Tirpak, “Short’s View of the Air Campaign,” *Air Force Magazine*, September 1999, 45.

potential impact of physical terrain must be realistically assessed and taken into account when developing ISR support for an air campaign.

The nature of political objectives also greatly impacts air operations and by extension the ability to conduct ISR in support of those operations. Political objectives can be either positive or negative in nature. Positive objectives are defined as requiring the application of force, while negative objectives require the limitation of force. In his seminal work on the application of air power in Vietnam, Mark Clodfelter posits that the more negative objectives imposed on an air operation, the more difficult it becomes for air power to achieve its positive goals.⁷ In Allied Force, maintaining the integrity of the NATO alliance emerged as a major negative objective, perhaps even surpassing the positive objective of halting Serbian aggression. General Clark identified NATO solidarity as the overarching political goal of the campaign.⁸ Likewise, in its official after-action report to Congress, the Department of Defense identified continued NATO cohesion as an “overarching strategic objective in the offensive phase of the crisis.”⁹ Furthermore, Clark also identified three major military “measures of merit” which included: minimizing the loss of NATO aircrew and aircraft; disrupting the Serbian forces conducting ethnic cleansing in Kosovo; and safeguarding NATO ground personnel deployed to Bosnia.¹⁰ Two of these three military measures of merit can be considered negative objectives, indicating the weight of effort of the campaign tended toward avoiding loss more than achieving victory over Milosevic. While not specifically listed in Clark’s measures of merit, the prevention of civilian casualties also emerged as a major objective of the

⁷ Clodfelter, *The Limits of Air Power*, 216-217.

⁸ Wesley K. Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Conflict* (New York: Public Affairs, 2002), 184.

⁹ Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report* (Washington, D.C.: Department of Defense, January 2000), 7.

¹⁰ Clark, *Waging Modern War*, 183.

campaign.¹¹ These negative objectives created an increased burden on allied intelligence to provide more detailed and accurate targeting information to support the requirements for the precision application of air power.

The context of NATO's war for Kosovo presented significant challenges for ISR and air operations. A reacting enemy operating in a challenging physical environment presented a thorny problem set for allied intelligence. This problem was compounded by the need for more rapid and specific intelligence to meet the unique political requirements of the conflict. Taken together these factors can help explain the difficulty in achieving what NATO airmen were asked to do. While these assessments are interesting for examining past actions, this type of assessment can be provided for future air operations to communicate potential challenges and provide realistic expectations of what air power and intelligence can achieve.

Kosovo's Lessons for ISR Employment

While understanding the limitations of intelligence is an important starting point, developing a successful ISR strategy should also encompass best practices learned through the trials of past experience. The experience of Allied Force reinforces three overarching principles for airmen to consider when they develop an ISR strategy for an air campaign. First, ISR operations should be an integrated, multi-domain effort. Second, intelligence and operations should be integrated from the earliest stages of an air campaign. Finally, intelligence should provide an ability to assess the conduct of the air campaign to feed into strategy development. While not intended to be formulaic, these principles can provide a foundation for how to approach ISR strategy.

¹¹ Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 136.

ISR operations are most effective when executed as an integrated multi-domain effort. While integrating airborne ISR platforms with strike operations was a critical component in Allied Force, the complementary nature of airborne and space-based collectors was also leveraged. The close coordination with national intelligence agencies responsible for managing these assets paid dividends when airborne missions were unexpectedly cancelled. On at least one occasion, satellite imagery collection was able to pick up the collection deck from a grounded U-2 avoiding a major discontinuity in intelligence output.¹² This ability to rapidly shift between operating domains will likely continue to be important as potential enemies look for ways to deny particular collection apertures. On today's battlefield, this ability to rapidly shift between domains has extended into cyber-space as well.

The integration of the intelligence units of Task Force Hawk into the air campaign provides another example of the complementary nature of ISR across domains. The ability for ground-based intelligence collectors in Albania to provide targeting intelligence greatly enhanced air operations against VJ forces in Kosovo. Although a single military component, in this case the air component, may dominate a particular campaign, intelligence from another component may still prove valuable. For Allied Force, the integration of air and ground intelligence was accomplished ad hoc as the campaign developed. In the future, intelligence professionals should actively seek to break down barriers to encourage intelligence sharing across military components.

A second major lesson for ISR operations during Allied Force is the requirement for detailed integration between operations and intelligence from the earliest stages of a campaign. This starts in the planning phase as a commander and his or her staff seeks to build an understanding of the target system. This early integration also builds a relationship of

¹² Col Ed Boyle, interview by the author, 28 February 2017.

trust and understanding. In the case of Allied Force, the Nimble Lion and Allied Talon air plans were never executed as envisioned, but a baseline of understanding and trust had been developed between the planners and intelligence staff that persisted into the war.

During execution of an air campaign, the link between operations and intelligence serves to provide decision advantage over the enemy. If these relationships are in place beforehand, they will be reinforced as operations unfold. If not, as in the case of Desert Storm, the rift between ongoing operations and intelligence could potentially expand. Also, in a modern air war requiring detailed target knowledge to both engage the enemy and prevent civilian casualties, sensor-to-shooter integration should be deliberately trained and equipped prior to conflict. The decade of thought and capability development between Desert Storm and Allied Force provided a distinct advantage for US airmen.

Finally, intelligence must be integrated to feed assessments of the friendly strategy. This is critical within the adversarial context of strategy development, particularly if a strategy of coercion is employed. To support a coercive strategy, intelligence must be able to provide a baseline understanding of the target system and what elements are vulnerable to attack as well as how these elements tie into the decision calculus of the enemy. As operations are ongoing, intelligence must be able to assess how those elements are being affected and if those effects are making an appreciable impact on the enemy. This level of assessment has historically been extremely difficult to achieve for an air-centric coercion campaign.

Implications for the Future

Serbian leadership and military forces applied lessons learned from observing US operations in the Persian Gulf during both Desert Storm and Desert Fox. Since the conclusion of Operation Allied Force, America's adversaries have had an additional 17 years to watch and

learn from its global operations. It remains unlikely that a future adversary will present a straightforward, set-piece battle for the US as the Iraqis did in 1991. The battlefields of Serbia and Kosovo with their unique political constraints and evasive enemy seem a much more realistic template for future military actions. In the future, however, the air defense systems will be much more lethal and capable than those faced in the skies over Yugoslavia. Airmen must be cognizant of these challenges and develop ISR strategies to provide the highest quality intelligence for decision makers across the spectrum of conflict.



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